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ORIGINAL ARTICLES.

ON THE NATURE AND TREATMENT OF EXOPHTHALMIC GOITRE, WITH SPECIAL REFERENCE TO THE THYROID THEORY OF THE DISEASE AND TO THE TREATMENT BY THYROIDECTOMY.[1]

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THE THEORIES OF THE NATURE OF EXOPHTHALMIC GOITRE.

EVER since the early descriptions of exophthalmic goitre by Graves in England in 1835, and by Basedow in Germany in 1840, the nature of this affection has been a matter of debate. Numerous theories have been offered to account for the disease, but one by one they have been discarded, for each in turn has failed to account for all the symptoms presented by the patients. The theory of cardiac disease, organic or functional, was the first one to be abandoned. The theory of disease of the sympathetic nerve was largely hypothetical, being based upon an erroneous physiological conception of the action of the sympathetic nerves and upon very doubtful pathological findings. The theory of a primary disease of the vasomotor centre in the medulla oblongata appeared to have a greater amount of support than any other, yet even this had many weak points, and the fact could never be forgotton that in many cases of disease no lesions were found in this region after death. The theory that a general neuropathic constitution predisposed to the disease was doubtless true, but alone, hardly accounted for its development and has been justly looked at with suspicion in England and America, for every physician has seen the disease develop in persons of good nervous constitution. The theory of toxic influences originating in intestinal indigestion has an element of improbability, for this is a common condition while Graves' disease is a rare affection.[2]

It is only within the past few years since the more accurate knowledge of disease of the thyroid gland has been reached by physiological experimentation, by clinical observation in cases of myxedema, of cretinism, and of the various forms of goitre, and by pathological investigations, that a clue has been reached to the problem of the origin of Graves' disease.

The theory which I wish to urge that exophthalmic goitre is due to hyperactivity of the thyroid gland is by no means an original one. It was first proposed by Möbius[1] of Leipsig, in 1886, and in spite of most vigorous opposition has been gradually gaining ground during the past ten years, being now accepted by many authorities in Germany, by Brissaud,[3] Regnault,[3] Joffroy,[3] Boinet, and many others in France; by Greenfield,[5] Maude,[4] Adam,[5] Murray,[6] and Bramwell in England, and by many careful investigators in other countries. It is because the evidence in favor of this theory is not sufficiently appreciated by American physicians that I have brought it forward at this time. In but few American articles has it been discussed, viz.: by Dr. J. Arthur Booth, *Jour. Nerv. and Ment. Diseases*, August, 1894; by Dr. A. R. Oppenheimer, *Ibid.*, April, 1895; by Dr. Stieglitz, *N. Y. Med. Monatschr.*, June, 1895, and by Dr. James J. Putnam, "Trans. Mass. State Med. Soc.," 1895.

I have become converted to this theory by my own experience in the study both of exophthalmic goitre and of myxedema, and I am sure that anyone who has had occasion to observe these two diseases, to notice the striking contrast between them, or to watch the effect of the administration of thyroid extract in myxedema, in cretinism, or in the reduction of obesity, must have been impressed very strongly with the fact that the symptoms of exophthalmic goitre are due to an excess of thyroid secretion in the blood.

This theory will seem more probable if we contrast the symptoms present in myxedema with those present in exophthalmic goitre, and if we

[1] Read before the New York Neurological Society, April 7, 1896.

[2] In 13,520 cases, in the Nervous Department of the Vanderbilt Clinic, thirty-eight cases of Graves' disease only are recorded.

[1] *Schmidt's Jahrb.*, July, 1886; also in *Nothnagel's Spec. Path. u. Therap.*, Vol. XXII, 1896.

[2] Report of the French Congress of Neurologists, 1895. *The Medical Week*, 1895, p. 394.

[3] Bradshaw Lecture, *Brit. Med. Jour.*, December 9, 1893.

[4] *Brain*, 1894.

[5] *Lancet*, 1894, I, 307.

[6] *Twentieth Century System of Medicine*, Vol. V, 1896.

study the symptoms which are produced in patients suffering from myxedema by the administration in excess of thyroid extract.

The essential symptoms of exophthalmic goitre are the swelling of the thyroid gland, the protrusion of the eyeballs, retraction of the lids, and inability to converge the eyes to a near point; the rapid action of the heart and throbbing of the arteries; the burning and perspiring of the skin; the intense nervous excitement with tremor, sleeplessness, and mental irritation; occasional diarrhea, of a watery character; irregularity and rapidity of respiration, with sense of dyspnea, especially on any exertion, and sudden exhaustion, with occasional giving way of the limbs.

CONTRAST BETWEEN MYXEDEMA AND EXOPHTHALMIC GOITRE.

1. It is hardly necessary to mention the fact that in myxedema there is a *primary atrophy* of the *thyroid gland*, or else a destruction of the gland by some cystic growth which may result in the production of myxedematous symptoms associated with a goitre. There are tumors of the thyroid gland whose result is the destruction of the gland tissue by the tumor tissue, and it is in this class of goitre cases only that treatment by thyroid extract, which, as we shall see, is the worst possible form of treatment in exophthalmic goitre, has been of some service.

2. The *appearance of the eyes.* In myxedema there is a marked tendency to abnormal heaviness of the eyelids, so that the upper lid falls and the eyes are never widely open. This falling of of the lid appears to be independent of its thickening by the myxedema. There is also a retraction of the eyeball. I have noticed in all of my cases after a cure of the myxedema that the eyeball had been previously decidedly retracted, so that when the patient was cured and the eyeball was in its natural position the previous retraction, as shown by photographs, became noticeable. The narrowing of the palpebral fissure, by the semiclosure of the eyes, adds to the dull, lifeless expression of the face in myxedema and gives the patient the sleepy look.

In exophthalmic goitre the eyes are abnormally widely open. And even in the cases in which the exophthalmus is not sufficient to interfere with the movement of the upper lid there is a tendency to retraction of this lid so that it does not descend in a normal manner when the patient is told to look downward (Graefe's symptom). The lower lid is also slightly retracted in exophthalmic goitre (Stelwag's symptom). This is more noticeable when the eyes are prominent, but even when they are not it is quite common for the sclera to be visible all around the iris in this disease. The prominence of the eyeballs is of course one of the three chief symptoms, and is, at times, a very painful one, leading occasionally to ulceration of the cornea.[1]

3. The *condition of the heart and arteries* in myxedema is exactly the opposite of the condition found in exophthalmic goitre. In all the cases of myxedema a slow pulse is present. In one of my cases it was habitually 60, in another 62. The pulse is also small and of high tension in myxedema. It is well known that myxedema has been occasionally mistaken for Bright's disease, usually for the form of chronic interstitial nephritis or contracted kidney in which there are high tension pulse, edema, albumin, and hyaline casts in the urine, and nervous symptoms, such as headache, and inability to use the mind.

In sharp contrast to this condition are the rapid, full, large pulse and throbbing arteries, constantly complained of in exophthalmic goitre. As a result of these dilated blood vessels, we have the pulsation of the goitre, the bruit in the neck, and the intense flushing and heat of the skin and the marked increase in the perspiration. In none of my cases of exophthalmic goitre, has the pulse been less than 100 per minute, and often it has risen to 150.

4. *Skin.* In myxedema the skin is thickened, is rough and scaly, is dry, is apt to crack, does not perspire, and the growth of the hair is impaired. The hair becomes dry and brittle, and falls out; the nails become ridged and thickened, and both nails and skin are abnormally discolored by a deposit of blackish pigment beneath the epidermis. The electrical resistance is increased in myxedema on account of the thickness of the skin.

In exophthalmic goitre the skin is particularly soft, thin, fine, and almost transparent, there being little of the fatty tissues naturally present beneath it, so that, as a rule, the patients appear to be slightly emaciated, especially about the cheeks and neck. It is moist, and the perspiration is constantly excessive. It is smooth, and even glossy. The growth of hair is stimulated, and the hair is oily and soft. The nails grow rapidly, and have a glossy appearance almost as if manicured. The electrical resistance is diminished in exophthalmic goitre on account of the increased moisture of the skin.

5. *Temperature.* In myxedema, the patients

[1] For cases see "Trans. of the Ophthal. Soc. of the United Kingdom," Vol. XII, 1886.

suffer constantly from a sense of cold. In warm weather they feel chilly, and in cold weather they suffer extremely from the cold. The body temperature is uniformly depressed, being 97° or 97½° under the tongue in the majority of cases. Even when these patients are warmed artificially by a hot bath or by a very hot atmosphere, they never perspire.

In exophthalmic goitre, patients suffer constantly from a sensation of heat which is at times that of disagreeable burning of the entire skin, so that they are very fond of undressing themselves and exposing their bodies to cool air. They dislike extremely to be in a hot or confined room. They perspire freely, and the temperature is actually elevated at times one-half to one degree. In one of my patients suffering from this disease the temperature was never below 99½° during three months, and often reached 101°.

6. One of the points of the greatest contrast between myxedema and exophthalmic goitre is found in the *mental condition* of the patient. In myxedema there is a particularly dull condition of the mind. It seems impossible for the patients to interest themselves in their ordinary occupation, or in matters which would, under usual circumstances, excite them to mental activity. They are indifferent to their surroundings; they are content to remain without occupation, sitting listlessly, not exerting themselves in any manner, and not occupying their minds in any way. This state of indifference is often attended by a condition of depression, a depression different entirely from that of melancholia, for it is not attended by delusions or produced by a train of thought, and there is none of the variation in the degree of depression which is so commonly observed in true melancholia. In myxedema, hallucinations are quite a prominent symptom. These are chiefly hallucinations of sight, animals and faces being seen chiefly in the evening or at night, and sometimes hallucinations of sound occur, voices being heard. The patients in myxedema recognize the hallucinations as products of the mind. They do not become the basis for delusions, and although annoying they do not lead to insane acts as in hallucinatory insanity. In true melancholia it is to be remembered that hallucinations are not at all common. It is the emotional rather than the sensory sphere which is excited. The condition of mind, therefore, in myxedema is rather to be described as one of partial dementia with some depression of spirits than as a melancholic state. The patient appears to be lacking in all spontaneous mental processes, to be sluggish in thought, and to be depressed thereby; and yet when the mind is excited to perform its ordinary work, it appears to be capable, and shows none of the defects of primary or of terminal dementia. There is never incoherence of speech. There is never the lack of reasoning power.

Let us contrast this condition with that present in exophthalmic goitre. It is a characteristic symptom of patients suffering from this disease that they are mentally alert, extremely active and rapid in all mental processes, and are in a state of psychical excitement. They are quick to catch an idea, imaginative and eager, sanguine and energetic, and are conscious themselves of an unusual flow of thought and intensity of emotion. They even complain that the insomnia from which they suffer is due to the fact that they cannot stop thinking, and they are conscious of a state of mental activity which is unnatural and which is perhaps comparable to the condition present in the early stage of intoxication.[1] In fact, the appearance and manner of these patients often suggests the possibility of their having been unduly stimulated. There is no periodicity in this condition of mental activity. It is not greater at one time than at another, but it is frequently attended by a positive sense of exhaustion, the patients feeling the reaction from this mental strain, and hence becoming depressed and weary after any mental exertion. It is for this reason that patients suffering from exophthalmic goitre are always unduly fatigued by social intercourse, and suffer from a period of collapse after any mental excitement. It is well known that the rest cure, attended by isolation, by absolute mental repose, and by a cessation of all mental activity is of service chiefly in quieting the mental and nervous symptoms of this disease.

While these are the ordinary mental symptoms of exophthalmic goitre, there are cases which go on to a much more active state of mental derangement. Acute mania is known to be a complication of very serious import in the course of this disease.

It has been my fortune to have seen more than one case presenting acute maniacal conditions. One observed in 1892 was especially impressed upon my memory. In this case and in others that I have seen, the state of mental excitement did not correspond at all to that of true acute mania, and there were no hallucinations present. It was a state of abnormal mental activity which might be described as a hysterical insanity, and

[1] See also Maude, *Brit. Med. Jour.*, 1893, II., 892.

yet there were not the outbursts attended by complete loss of self-control which one is accustomed to see in cases of mental hysteria. In a word, the mental condition might be best described as the exact counterpart of the condition of dementia already described as existing in myxedema. In the one case the mind was hampered in all its action, in the other case the mind was stimulated in all its activity.

Associated with the mental activity there is commonly a tendency to physical activity in patients suffering from exophthalmic goitre. They are constantly moving about, and it is very difficult to keep them quiet, the muscular restlessness being very noticeable. There is also a constant tremor in the extremities and often in the muscles of the face. In myxedema, on the other hand, there is a sluggishness and lack of spontaneous movement.

It seems evident, therefore, by this comparison of the essential symptoms in these two diseases that they present counterparts of each other, and that in each organ or function affected in both the symptoms present in the one disease are exactly opposite to those present in the other.

I hardly need remind you that both diseases are most common in women, and both have some relation to the sexual function.

EFFECT OF THYROID EXTRACT IN MYXEDEMA.

We have thus far shown that the symptoms of myxedema and of exophthalmic goitre afford a striking contrast to one another. As myxedema is due to an absence of thyroid secretion, exophthalmic goitre may be reasonably ascribed to an excess of thyroid secretion. This hypothesis receives distinct confirmation from the facts observed in the treatment of myxedema by thyroid extract,[1] and more particularly in the effect of overdoses of this remedy. The symptoms which appear to indicate that too much thyroid extract is being given to a patient suffering from myxedema are (1) a rise of temperature above normal, (2) an increased rapidity of the pulse, (3) a burning sensation with some flushing of the skin, (4) a rapid emaciation, (5) a condition of mental excitement, and (6) exophthalmus.

THE ARGUMENT FROM PATHOLOGY.

It has been already stated that the weak point in all previous theories to account for exophthalmic goitre, has been the absence of uniform pathological findings in the cases which have been investigated. Singularly enough, pathologists have neglected to record the condition of the thyroid gland in this disease until very recently. Byron Bramwell was among the first to describe the changes in the thyroid gland. He said, in 1891, that in exophthalmic goitre the condition usually present in the thyroid was comparable to an acute catarrhal process, with great increase and an altered character of the epithelial cells, an apparent proliferation throughout the gland and a great diminution of the formed colloid material. In other words the essential change was one in which the process of secretion was greatly exaggerated and altered in character.[1] Greenfield described more fully the great significance and uniform character of the changes present in the thyroid gland, and in his interesting Bradshaw lecture,[2] will be found the most satisfactory account of what is doubtless the constant lesion present in this affection, namely: a true hypertrophy of the glandular elements of the gland with increase of its secretion, and possibly some change in the character of that secretion. His findings have been abundantly confirmed by other investigators in various countries,[3] and in all recent autopsies the same changes in the thyroid gland have been demonstrated. These changes are exactly such as would occur in a gland whose functional activity was greatly increased, and whose actual size was enlarged in accordance with this function. They are quite comparable to the changes undergone by the mammary gland during the process of lactation, not really pathological in nature, but what one might consider a physiological hypertrophy.

The objection which has been raised, that in a few cases of this disease there is no enlargement of the thyroid gland, is not a valid one. For it is perfectly possible for a gland to show a great hyperactivity without actual enlargement, as for example, the salivary glands in a state of salivation; or the mammary gland in a multipara. As to the question of the actual change in the character of the secretion of the gland in exophthalmic goitre we as yet know very little. That is a subject requiring further investigation.

CONSIDERATIONS REGARDING TREATMENT.

If the theory of exophthalmic goitre here stated is the correct one, it is necessary for us to bring into accord with it some of the successful results of the various forms of treatment which have been recommended for this disease. It is

[1] See also Canter, *Annales de la Soc. Med. Chir. de Liege*, January, 1894, p. 12.

[1] *Edin. Med. Jour.*, 1891, Pt. II, p. 1044.
[2] *Brit. Med. Jour.*, December 9, 1893.
[3] Reymond, *Bull. d. l. Soc. Anat. de Paris*, Sec. VII, No. 18; Walter Edmunds, *Brit. Med. Jour.*, May 25, 1895.

well known that a very large proportion of patients who suffer from exophthalmic goitre, recover either entirely, or for a considerable length of time.[1] Such recovery is of course inconsistant with the idea of a permanent destructive lesion of any part of the body and is only possible in a functional disturbance. If the cause of the disease is hypersecretion of the thyroid gland, a reduction of that secretion to its normal amount would result in a cure, hence there is nothing in the theory advanced that is against this successful result. But when the enormous number of remedies, which have been brought forward, are reviewed, it is not easy to understand in what way the result in any individual case has been accomplished.

If we review the various methods of treatment which have been proposed, it is perhaps possible to explain the success obtained by the theory that these various remedies have in some manner effected a diminution in the activity of the thyroid gland. Thus the remedy most employed in England is belladonna, and it is not improbable that this has a specific action upon the thyroid gland as it has upon other glands of the body in arresting its secretion. I can report a recent case, a girl aged seventeen, with all the characteristic symptoms present one year, who has been very greatly improved in two months by doses of belladonna carried to the physiological limit.

The rest cure is probably the most successful of all the methods employed in the treatment of exophthalmic goitre,[2] and this, together with the use of iron and tonics, accomplishes the purpose by quieting the general nervous irritability. And this leads us to refer to the very marked effect of the mental condition upon the symptoms of exophthalmic goitre. We know from daily experience that the mind has a distinct action upon the various glands of the body; thus the secretion of tears is almost entirely produced by mental impressions; the secretion of saliva is also markedly stimulated by sensory impressions; the secretion of gastric juice and the whole process of digestion are decidedly affected by mental conditions, as is markedly evidenced in the malnutrition and malassimilation present in cerebral neurasthenia and in the various forms of insanity. We have presumptive evidence, therefore, that the mental condition may affect the secretion of the thyroid gland, and there is an overwhelming amount of testimony to the effect that the onset of exophthalmic goitre can be traced to mental emotion, especially of the nature of fright, dread, and anxiety. It is impossible, therefore, to ignore the mutual relation between a restful state of the mind without anxiety, and a diminution or more natural secretion in the glands of the body. Hence it seems probable that the success of the rest cure in these cases is due to the little understood, but powerful effect of the mental state upon bodily functions.

Electricity is an agent which has been greatly vaunted in the treatment of exophthalmic goitre. Inasmuch as various methods of its application have met with success in certain hands and the same methods have utterly failed in others, it is difficult to determine the real value of this therapeutic agent. It is possible that it may act through the mind by suggestion. It is also possible that it may have a distinct influence upon the secretion of the gland, either by a catalytic action of the galvanic current or by a compression of the gland exerted through the muscles, which are excited by the strong faradic current.[1]

I am informed by Dr. Rockwell, whose experience is probably greater than that of anyone else in this city in the electrical treatment of this disease, that his greatest successes were obtained by means of very strong galvanic currents (60 milleamperes), applied through a clay electrode directly to the gland, and such a current would undoubtedly result in chemical changes within the gland, modifying its secretion. Dr. Putnam of Boston favors strong faradic currents causing contraction of the muscles of the neck and compression of the gland.

It is somewhat difficult to explain the favorable action secured by aconitia and veratrum viride, although the testimony in favor of these drugs is too definite to be ignored. They are both known to have a distinct action in modifying the secretion of the glands of the body. It is also possible that by their depressant influence upon the heart they have reduced materially the flow of blood through the thyroid gland, which, being near the heart, would be manifestly affected by the force of its activity. If ergot contracts the medium-sized arteries, its favorable action may be ascribed to diminution in the blood supply of the gland.

It is thus evident that the effect of remedies which have been urged in this disease can possibly be explained by their known effects in diminishing the amount of thyroid juice produced within the body.

I desire to mention one remedy which in several cases has seemed to me to be of great service,

[1] See also J. M. Taylor, Medical News, December 16, 1893, and Möbius, *l. c.*

[2] See J. Madison Taylor, Medical News, December 16, 1893.

[1] Vigoroux.

namely, the glycero-phosphate of sodium, in twenty-grain doses, three or four times a day. This was first used by Trachewsky in Kocher's clinic,[1] and was found to have the effect of diminishing the size of enlarged thyroid glands. It has also been successful in the hands of Chibret.[2] Under treatment by this drug alone, a patient in the Presbyterian Hospital was markedly benefited within three weeks. A second patient to whom various forms of treatment were given by me for one and a half years, appreciated within two weeks the fact that this remedy had been of more decided benefit in every direction than any other which had been used in the previous period.

THE TREATMENT BY THYROID AND THYMUS EXTRACTS.

It is well known that within the last few months attempts have been made to treat patients suffering from exophthalmic goitre by means of the administration of thyroid extract.[3] This has been done in a purely empirical way. The concensus of opinion, however, seems to be that the thyroid treatment for exophthalmic goitre is not only of no service, but is actually of great injury to the patients. Very numerous reports have appeared in all parts of the world to the effect that patients suffering from exophthalmic goitre have had all their symptoms markedly increased by the use of thyroid extract. Thus, in a patient of Auld[4] the symptoms of the disease which had previously subsided were all brought back by the administration of this extract. In patients of Nasse[5] and Brissac,[6] Béclère[6] and Stabel,[7] the symptoms present were very much exaggerated but subsided when the thyroid was stopped, and in one unfortunate case on record a fatal result appears to have followed soon after the use of the thyroid.

If the theory of the disease here defended is correct, if exophthalmic goitre is due to an excess of thyroid secretion, there is every reason why the administration of thyroid should be avoided.

It may be affirmed, however, that if there is a well authenticated case on record of improvement of the disease under the administration of thyroid extract, it would entirely overthrow the theory here defended. I do not think that the cases of supposed improvement, of which a few have been reported, will bear thorough and critical examination. It is well known that the symptoms of tachycardia, exophthalmus, and general nervousness, have been occasionally associated with tumors in the neck, near to, but not involving the thyroid gland. In fact, Buschan[1] has attempted to draw a sharp line between primary cases of exophthalmic goitre and secondary cases of exophthalmic goitre; the latter consisting of two or more of the symptoms of the disease co-existing with other diseases of the thyroid gland. It cannot be denied that such a distinction appears to be valid. And admitting the fact that in ordinary goitre, in which the secretion of thyroid is arrested or perverted by the existence of the tumor, beneficial results have followed the use of thyroid extract, as reported by Bruns,[2] it seems possible to explain these cases of beneficial use of the drug on the theory that the patients were really suffering from a secondary form of exophthalmic goitre.

Another fact must be mentioned in this connection, namely: that there are some statements in favor of the use of thymus extract in the treatment of exophthalmic goitre. The origin of this treatment is as follows: Owen reported a case of exophthalmic goitre cured by the use of thyroid glands given in bulk. Some months after, he published a correction of this statement, having ascertained that the patient had been fed upon thymus gland exclusively, and had never received any thyroid gland. He ascribed the improvement therefore to the thymus, and following in his steps others have tried the use of thymus in exophthalmic goitre. Watson Williams[3] reports a case very carefully observed, in a hospital, in which this treatment, like that by thyroid extract, was of positive harm to the patient.

We know at present very little regarding the thymus gland or its use. It is a structure which is known to atrophy soon after infancy, and it appears to be rudimentary in the majority of adults. There are a few observations which lend support to the statement that in exophthalmic goitre it has been found increased in size after death. Such increase in glandular structure, however, associated with exophthalmic goitre is not unknown. Thus, Bowman[4] records a case in which the lachrymal and parotid glands were much enlarged, and Higgins[5] records a case in which all the lymphatic glands within the thorax were much developed, and one writer records a case of a man whose mammary glands were as much enlarged and as tender as those of a woman in the later stages of pregnancy. This glandular enlargement subsided

[1] Kocher, *Verhandlung d. Deut. Gesell. f. Chirurg.*, 1895.
[2] *Medical Week*, 1895, p. 91.
[3] Voisin, *Gaz. Med. de Paris*, 1894, p. 513.
[4] *Brit. Med. Jour.*, July 7, 1894.
[5] *Verhandl. d. Deut. Gesell. f. Chir.*, 1895.
[6] *Medical Record*, November 24, 1894.
[7] Stabel, *Berl. klin. Wochen.*, February 3, 1896.

[1] Buschan, "Die Basedowische Krankheit," Wien, 1894.
[2] Bruns, *Beiträge z. klin. Chirurgie*, XIII, 1895, p. 303.
[3] *Clinical Journal*, December 11, 1895.
[4] "Trans. Ophthal. Soc. of the United Kingdom," 1896.
[5] *Ibid.*

soon after the extirpation of the thyroid gland, which relieved the other symptoms of exophthalmic goitre in his case.

With our present knowledge it cannot be stated whether enlargement of the thymus, if it occurs in exophthalmic goitre, is merely an homologous hypertrophy or a compensatory hypertrophy. In the former case it would be analogous to the enlargement of the thyroid gland, under which circumstances the administration of thymus would be distinctly contra-indicated. In the latter case it might be regarded as an effort of nature to combat the influence produced by the increase of thyroid secretion, and in this case the administration of thymus would be distinctly indicated. Until further facts are at hand with regard to the function of this gland, or with regard to its effects in exophthalmic goitre, we cannot reach a decision as to its use. It is always to be remembered that reports of benefit attained by the use of a remedy are more likely to be published than those of failures, and unless the testimony in favor of the use of thymus were much more voluminous and uniform than at present, I should not advise its trial.

THE QUESTION OF OPERATIVE TREATMENT.

If the conclusion thus reached is valid, that exophthalmic goitre is due to an excessive secretion of the thyroid gland, the most rational form of treatment for the disease would appear to be the removal of the gland. Yet surgical treatment is not to be undertaken rashly in this disease. We have seen already that there is a very decided tendency to recovery, either spontaneously or under the influence of treatment, and therefore it is only in the most obstinate cases of very severe type, or in the cases where life is endangered by the sudden swelling of the neck to the extent of producing asphyxia, that the question of operation is to be seriously considered. There are, however, many cases which, after a longer or shorter period, devolop such serious symptoms and remain unrelieved so long by medical treatment that the question of operation must be faced. It is therefore necessary to review such facts as can be gathered regarding the result of surgical treatment in exophthalmic goitre.

In December, 1893, Putnam collected fifty-one cases of exophthalmic goitre which has been operated upon.[1] In December, 1894, Buschan was able to collect ninety-eight cases of operation.[2] I have been able to find ninety-two additional cases in the literature of 1895, and especially in the American journals, bringing the total number of cases operated up to 190.[1] Of this number twenty-three cases died immediately after the operation. Seventy-four cases are reported as entirely cured. Forty-five cases are reported as improved, and three cases are reported as not improved; in regard to the remainder no final results are reported. The occurrence of sudden death immediately after the operation, or within two or three days of it, is a fact of very serious import. Death after these operations is not owing to hemorrhage nor to any want of aseptic precautions. In all the cases reported there have been a sudden rise of temperature to 105°, 106°, or 107°; a very rapid pulse (180 to 200); extreme nervous excitability and restlessness, with great anxiety and distress; profuse sweating, and, finally, collapse and death from heart failure. The most reasonable explanation for this series of symptoms is a sudden poisoning of the entire system by an excessive absorption of thyroid juice suddenly produced during the operation. This may perhaps be induced by the necessary handling of the gland during the operation, or by the absorption of its secretions through the open blood vessels which have been torn or divided, or from a hypersecretion of the gland with a consequent absorption going on during the operation, possibly from the effects of ether, as that is well known to be a dangerous anesthetic in exophthalmic goitre. The theory of an increased secretion of the gland is supported by the fact that in the operation advised by Jaboulay, and named by him exo-thyro-pexie (in which the tissues on the neck are divided, the gland is brought forward and left exposed to the air, but not divided or removed), there has always been noticed a large amount of thyroid se-

[1] *Journal of Nervous and Mental Diseases*, December, 1893.
[2] *Wien. Med. Wochen.*, Nos. 51 and 52, 1894.

[1] The following named physicians and surgeons have reported cases of exophthalmic goitre operated upon:

Andry, Barker, Bernard, Bergmann, Billroth, Bockel, Booth-Curtis (6), Bottini, Briner-Kronlein (8), Brissaud, Bristowe, Caird, Chretien, Cohn, Coley, Determeyer, Dressmann (3), Dubreuil, Edwards, Eulenberg, Frank (4), Fraser-Lister, Ganser (2), Gerster, Guttman, Hahn (2), Halsted (3), Hartley (3), Jones (2), Kammerer (2), Kelly, Kocher (34), Kummell, Lediard, Lavise, Lemke (8), Lloyd (2), Mannheim (3), Messopust, Mikulicz (11), Möbius, McCosh, Markoe (4), Neumann, Nunneley (6), Newton, Ollier, Paul (2), Pean, Putnam (3), Rehn (9), Roux (5), Rupprecht, Ray (5), Riedel (4), Rotter. Smith, Schuchfardt, Schuler, Sickinger, Spire, Sprengel, Steltzner (2), Sulzer (3), Stierlein (2), Stockman, Strumpell, Tillaux (2), Troje, Tuffier, Trendelenburg, Tessier-Dolbeau, Weideman, Wette (4), Watson (3), Wolff (3).

Reference to these operations will be found in the following articles:

Wette, *Arch. f. klin. Chir.*, 1892, XLIV, Hefte 2 and 3.
Putnam, *Jour. Nerv. and Mental Diseases*, December, 1893.
Lemke, *Deut. Med. Woch.*, 1894, No. 42,
Curtis-McCosh, *Annals of Surgery*, 1895, Vol. XXII, p. 793.
Chamberlin, *Thèse de Paris*, 1895.
Report of French Neurol. Cong., *Medical Week*, 1895, p. 394.
Briner, *Beitrag z. klin. Chir.*, Vol. XII.
Mikulicz, *Verhand. d. deut. Gessell. f. Chir.*, 1895.

Many of the American cases have been put at my disposal by the surgeons themselves.

cretion exuded from the surface of the gland into the dressings. Had this extraordinary secretion been absorbed into the blood it would undoubtedly have produced poisonous effects. That manipulations of the gland of any kind are liable to produce an increase in nervous excitability and in the rapidity of the pulse is a fact which every patient suffering from exophthalmic goitre is aware. Hence they uniformly shrink from anything compressing the neck or from any attempt to handle the goitre. Such handling and pressure is usually inevitable during the operation, and seems to me to be the natural explanation for the occurrence of poisoning following the operation. It may not, however, be the only explanation, for in three cases of which I have knowledge, sudden death has followed when the goitre removed was an extremely small one. I cannot, therefore, but believe that it is possible that the secretion of the gland is stimulated by the inhalation of an anesthetic, or by the anxiety preceding the operation, and therefore believe that the operation should be done, if possible, under cocaine rather than ether, as recommended by Kocher.

It is the fact of these sudden deaths, occurring during or after operation, which has, I believe, prevented a more extensive adoption of this form of treatment in this disease, and it is because such deaths have been inexplicable that they have been so freely and fully reported. Hence I believe that the statistics already given are fairly reliable, although it may be that the percentage of deaths (12) is somewhat in excess of the truth.

It will be noticed that seventy-four cases are reported as cured. Many of these cases have been watched two, three, or four years before such reports have been made, during which time the cure has been permanent. Hence the charge cannot be made that the reports have been published too soon after the operation to determine its ultimate effects. As a rule, the cures have not resulted immediately after the operation. There has been a steady progressive improvement during two, three, or four months, untll finally the cure has been reached. The first symptom to improve is the tachycardia. In one case (for the privilege of reporting which I am indebted to Dr. B. Farquhar Curtis) the pulse diminished during the operation from 120 to 80, and remained constantly below 100 after the operation. In the majority of cases the pulse has been notably slowed within twenty-four hours of the operation. The second set of symptoms to subside subsequent to operation are the nervous excitability and restlessness and the tremor. These symptoms are so distressing to the patients that the relief which they obtain in getting rid of them in almost every case leads to a feeling of great gratitude that the operation has been performed. A number of patients whom I have examined subsequent to the operation, through the kindness of Dr. Curtis and Dr. Markoe, have expressed themselves as feeling very much better, even before the exophthalmus had been at all noticeably decreased.

Together with the subsidence of the nervous symptoms, there is a gradual diminution in the sense of heat and in the perspiration and the feeling of giving way of the limbs, and the uncertainty in gait also soon disappears.

The exophthalmus persists longer than any other symptom. Some cases are reported in which the exophthalmus has persisted for a year after the operation, though in almost all cases it has been noticeably less. It finally passes away. It must be admitted that there is no reasonable explanation for the existence of exophthalmus on any of the known theories of Graves' disease. The cases which have been reported here as cured are cases in which all of the symptoms have actually subsided.

There are forty-five cases that are reported as improved. In these cases it is the exophthalmus which has remained, or the liability to a rapid action of the heart, with nervousness, on any exertion.

I think it may be said in conclusion that in the severe and intractable cases of exophthalmic goitre in which rest-cure and medicinal treatment have failed to relieve, the operation of extirpation of the thyroid gland must be considered as justifiable, and should be advocated by physicians. It should not be undertaken by surgeons hastily, or without some experience. The surgeons who have been most successful in the past few years are those who have had the largest experience in the extirpation of goitres. The respective merits of the various operations proposed cannot be discussed in this place. Some surgeons prefer an almost complete extirpation of the gland, though it is always to be remembered that a small portion of the gland must be allowed to remain, else the patient will develop symptoms of myxedema.

Some surgeons prefer the operation of tying three or four of the arteries entering the gland, although this operation is almost as difficult as that of extirpation, and is not by any means uniformly successful, the number of new vessels entering the gland being so great as to keep up its size and nutrition even after the main vessels have been tied. Others prefer the operation of

Jaboulay of exothyropexie, in which the gland is exposed, drawn forward into an open wound, and then allowed gradually to contract and dry up. This is not always successful, and leaves a very ugly scar in the neck. It is, however, safer than either of the other operations, Jaboulay having reported fourteen cases successfully treated by this method without a death.

CONCLUSIONS.

1. It seems probable that the symptoms of exophthalmic goitre are due to an excess of thyroid juice, either of normal or abnormal character, circulating in the blood and acting directly upon the vasomotor and nervous systems and upon the muscles.

2. It seems probable that the best treatment for the disease is to arrest the secretion of the thyroid gland or to remove the gland from the body.

THE MANAGEMENT OF PLACENTA PRÆVIA—WITH REPORT OF FOUR CASES.[1]

By J. NOER, M.D.,
OF STOUGHTON, WIS.

PLACENTA PRÆVIA is ranked by all obstetricians as one of the most formidable and dangerous pathological conditions that can be met with in obstetric practise. It is most unfortunate that there should be, among leading authorities on obstetrics, so much learned obscurity and diversity of opinion regarding the pathology and treatment of this condition. The present state of knowledge regarding the cause and the pathological changes that are responsible for this peculiar implantation if the placenta may not warrant dogmatic statements; yet it would seem that we are in possession of sufficient statistical if not scientific data to warrant very decided and positive conclusions regarding treatment. Positive conclusions may be incorrect, but they tend to produce action in a definite direction, producing results that can be estimated and weighed in the light of statistical evidence. Multiplicity of theories produce nothing but indirection, and are a source of much annoyance to the inexperienced. They are certainly often responsible for the mismanagement of placenta prævia.

"By placenta prævia," says Playfair, "we mean the insertion of the placenta at the lower segment of the uterine cavity, so that part of it is situated wholly or partially over the internal os uteri." Granted that we have a condition of this kind, what are we to do about it? A diagnosis cannot be made, nor is suspicion aroused till there is sufficient dilatation of the cervix to produce a hemorrhage more or less extensive. When this occurs the patient is probably in the seventh or eighth month of utero-gestation. Diagnosis can, as a rule, be made without difficulty at this period.

The hemorrhage before, during, and after delivery, is the all-important consideration in these cases, and to guard against this danger must be the chief aim of all treatment. By reason of the low situation of the placenta the imperfect retraction of the uterus and the tears that are likely to result during artificial delivery, the liability to sepsis is greatly increased, and must be counteracted by the most rigid asepsis.

Regarding the source and the cause of the hemorrhage authorities are at variance. It seems, however, entirely rational to *assume* that the placental site is the source of the hemorrhage, the bleeding being caused by the partial separation of the placenta due to the expansion of the lower uterine segment during the latter months of gestation. Now if the hemorrhage be due to placental separation, it must of necessity be irrational and unjustifiable to leave these cases to nature or to a mere palliative or tentative treatment. Braxton Hicks' rule,[1] viz: "After diagnosis is made, always proceed as early as possible to terminate pregnancy," is imperative in these cases. It may not, however, be possible to at once empty the uterus, hence various palliative measures, as tamponade, rest in bed, and opium may be resorted to, to gain time to obtain assistance, and to make such arrangements as may be deemed necessary for artificial delivery. The use of ergot has been quite universally condemned by recent authorities, while the use of the tampon has fared but little better. Ergot is no doubt dangerous to the life of the child, but if it be freely used it will arrest the hemorrhage, especially if the placenta be one of lateral implantation.

The following case illustrates the utility as well as the danger of ergot:

CASE I.—On the night of November 8, 1890, a summons called me six miles out of town to a case of labor, a note from the attending physician stating that he had a case of placenta prævia which demanded assistance, chloroform, and forceps. The patient was forty years of age, and in labor at term with her ninth child. There had been no untoward symptoms during gestation, and labor began naturally without any suspicion of the abnormal condition till a sudden gush of blood astonished the patient and physician. Ergot was at once administered in very decided doses. This soon produced severe, almost continuous pains, which forced the

[1] Read before Wis. State Medical Society, held at Superior, Wis., June, 1895.

[1] *British Medical Journal*, November 30, 1889.

presenting head down into the pelvis, and effectually stopped the hemorrhage. When I arrived, about three hours after the first gush of blood, there was absolutely no hemorrhage, nor could any occur, as the pains were severe and continuous, the head well down in the pelvic cavity compressing the presenting placenta against its bony walls.

As the patient was suffering severely, we deemed it best to deliver at once with instruments. The patient being chloroformed, I applied the forceps and promptly delivered a large, dead child. The mother had a rapid and uneventful convalescence.

It is possible that the ergot may in this instance have been detrimental to the child's life, but as it undoubtedly saved the mother, its use must be justified.

No absolute routine rule of practise can possibly be laid down in such a way as to fit every case and condition that may arise. In a case of placenta prævia a person must apply his knowledge of the condition, and deal with the exigencies that may arise with calm judgment and logical reasoning. The situation of the placenta, whether lateral or central, period of gestation, the distance of the patient from the physician, together with the conditions as to sepsis, the operative skill of the attendant and his assistant, if he have one, will have a bearing in the management of every case. Delivery at once, diagnosis being established, by bipolar version is undoubtedly a good routine practise, and gives as good results, both as regards mother and child, as any method of treatment yet put into practise. This might not, however, be a safe or practicable procedure if you are without assistance and without operative skill, and out in the country miles distant from skilled assistance. Under these circumstances the tampon, applied with antiseptic precautions, is the most reliable temporary expedient. It should be applied in such a way, with Sims' speculum, woman in left lateral position, as to thoroughly compress the cervix and lower uterine segment. A T bandage should then be applied and the patient kept in the recumbent position. The bladder should be evacuated with a catheter under aseptic precautions.

Under these circumstances, and with the precautions enumerated, the tampon is allowable and is the most certain and safe means to control the hemorrhage. The tampon will not only stop the hemorrhage but will ordinarily bring on pains, dilating the os preparatory to delivery by operative means. The following case illustrates the utility of tamponade:

CASE II.—On the night of November 27, 1892, I was called to go out ten miles from the city to attend a case of "flooding." The patient, Mrs. T. H., aged forty-one years, was pregnant 8½ months with her ninth child. The hemorrhage had ceased before my arrival, but the evidences of its occurrence were apparent in the blanched visage of the patient, the rapid, almost imperceptible pulse, and the syncope, which occurred on the slightest movement.

The bleeding must have been very profuse, as there was a stream of blood along the floor, a pool under the bed, and perfect saturation of mattress for a large area about the patient. The woman was large and stout. Physical examination revealed a softened open os, inside of which could be felt a soft, boggy mass, undoubtedly the placenta. The head of the child could be felt presenting at the superior pelvic strait. The surroundings of the patient as to cleanliness, assistance, etc., were very unfavorable. The following treatment was therefore adopted: Squibbs' ergot, 2 grms.; strychnin sulph., .005, both given hypodermically. A hot 1–2000 sublimate vaginal douche was admininistered, after which a vaginal tampon was inserted and a T bandage applied. I remained with the patient about three hours. By this time she revived and expressed herself as feeling very well. There were no further signs of hemorrhage, nor were there any labor pains. I therefore ventured to leave the patient in charge of a midwife, who was instructed how to pass catheter and not to disturb the tampon, but to let it be pushed out by the presenting head in case labor pains should come on before my return. In about ten hours I returned to find that Mrs. T. H. had a short time previously been delivered of a strong, healthy child. There had been but little hemorrhage during this time. The mother had an uneventful recovery and the child lived and prospered.

Lomer[1] of Berlin, who has carefully studied this subject and brought together a large number of cases, advocates very forcibly the treatment by premature labor and bipolar version. He says: "Induce labor at once. Turn as soon as you can get one or two fingers through the cervix. If the placenta is in your way try to rupture the membranes at its margin; but if this is not feasible, do not lose time; perforate the placenta with your fingers, get hold of a leg as soon as possible and pull it down. Do not extract the child then; let it come by itself or at least only assist its natural expulsion by gentle and rare traction." "Do away," he says, "with the tampon, as much as possible; it is a dangerous thing, for it favors infection and valuable time is lost in its application."

More than usual care should be bestowed on these cases after delivery. The loss of blood, the lacerations which are apt to occur from artificial delivery, vastly increases the shock and prostra-

[1] Professor Lomer, *Am. Jour. Obstet. and Diseases of Women and Children*. December, 1884.

tion. We have, therefore, a condition which renders our patient very liable to septic complications and *post-partum* hemorrhage. The administration of ergot, together with tonic doses of strychnia, is indicated the first week after labor. The strychnia will favor muscular tonicity, while the ergot will promote involution of the uterus and tend to prevent *post-partum* hemorrhage.

A copious vaginal and intra-uterine douche of boiled water, with some mild antiseptic like boric acid, or potassium permanganate, or creolin, should be administered immediately after labor, and an aseptic pad applied.

As an addition to the literature on the subject under consideration brief reports of the following cases are submitted:

Case III.—Mrs. C. C. E., aged forty, pregnant seven months with her eighth child, had a hemorrhage on the night of June 7, 1891. Examination to ascertain the cause of hemorrhage negative. Patient remained in bed three days, when she returned to her household duties. In about a month there was a slight recurrence of hemorrhage which ceased before my arrival. Cervix was soft and open, but placenta could not be felt by the examining finger. Treatment palliative, and patient kept quiet under close observation; two weeks later there was another and profuse hemorrhage. It occurred in the night, and had ceased before my arrival, in less than half an hour after its commencement. Placenta prævia was suspected and suggested on the second hemorrhage, but could not be demonstrated till after the third had occurred. Patient was now thoroughly tamponed under antiseptic precautions, and later delivered by version. The second day after delivery the patient had a violent chill, followed by a high temperature and the development of an extensive pneumonia. Three days after the onset of the fever there occurred a profuse uterine hemorrhage. To stop the bleeding a hypodermic injection of ergotin was given, and ice applied to the abdomen. These measures not affording immediate relief, a piece of ice the size of a small hen's egg was passed into the uterine cavity, which at once arrested the hemorrhage. A liberal use of stimulants, a few hypodermics of atropin, brought about reaction and restored the ebbing tide of life. The pneumonia was very extensive and was probably of septic origin. Gangrene of one lung occurred at a later period but the patient finally made a good recovery, after being bed-ridden for about two months.

Case IV.—Mrs. F. A., aged thirty-two, multipara. On June 29, 1893, at 2 A.M., she was taken with labor pains, an old, ignorant midwife being in attendance. The patient had bled a few times during gestation, but as it ceased spontaneously nothing was thought of it. Labor progressed naturally for about two hours when a sudden severe hemorrhage astonished the attendants. The midwife thought it might stop of itself, hence did not call a physician till bleeding had continued for three hours. Three hours more elapsed before her doctor arrived. When the doctor arrived the patient was completely exsanguinated. The doctor introduced tampon and gave stimulants pending the arrival of assistance. When I reached the scene of trouble the patient was comatose, pulseless, and delirious. The uterus still made efforts to expel its contents. The head was presenting at the brim of the pelvis, placenta being wedged in to one side. After a hurried consultation it was decided to deliver at once by podalic version as the only hope of saving the mother, the child being already dead. Version was difficult, but I succeeded in delivering the child in a comparatively short time. The mother failed to revive and expired in less than half an hour after operation.

THE IMPORTANCE OF SUPPURATIVE DISEASE OF THE MIDDLE EAR.

By CHARLES D. JONES, M.D.
of Malden, Mass.

It is undoubtedly a fact that disease of the middle ear is too lightly regarded. The number of persons who are content to attend to their affairs for months or years with suppurating ears is large, immensely larger than it would be if the disease were treated when it commenced; and much larger than it would be if it were treated at any stage of the disease. An acute suppuration is too often allowed to pursue its course undisturbed, the idea being that nothing should be done to interfere with the workings of nature.

The time to treat a suppurative disease of the tympanum is of course at its commencement, but most satisfactory results usually follow treatment even after years of suppuration; results which are occasionally as striking and satisfactory as any in surgery.

From the cases which I have had lately in private practice I have selected three for consideration. Each of these possesses details which make it peculiarly instructive:

Case I.—A girl, age eight years, was first seen February 11, 1895. One week previous she had complained of some pain in right ear. A few drops of chloroform and tr. opii. were applied locally by a member of the family and the discomfort soon passed away. But during the next few days she gradually fell into a comatose state, there were no particular symptoms, at least the family had noticed none. When first seen in consultation she was completely unconscious and presented typical cerebral symptoms of grave character. She was lying on the bed with the eyes closed; took no notice of anyone; occasionally she would open

her eyes and look at her father, but without giving any sign of recognition. Every few minutes she would shriek with a loud cry, most distressing to hear, and so loudly that conversation could hardly be heard in the room. This cephalic cry was very marked and characteristic. At this time she had not spoken for four or five days. Temperature normal, pulse good, bowels constipated, pupils equal and reacted normally to light. A little milk, which the nurse placed in her mouth, was swallowed.

Under ether the right ear was examined and the following conditions noted:

Occupying the site of the extreme posterior portion of the drum membrane was a dark-red, bulging tumor. The posterior and upper surface of the adjacent wall of the external meatus was considerably congested. No involvment of the mastoid could be made out. A thorough paracentesis was done, liberating a moderate amount of blood. No pus was seen, though a small amount could not have been detected in the presence of the hemorrhage. The ear was then cleaned antiseptically and dried out when the drum membrane was seen to occupy its normal position. It had, of course, lost its lustre and was gray and congested. The left ear was then examined. The membrana tympani looked healthy except near the posterior border, here were two or three little spots of bright red blood, which could be wiped off with the cotton probe, showing the posterior border of the membrana tympani a little congested but not bulging. A small incision made in the membrane disclosed nothing. Warm antiseptic douche in both ears. Calomel in small, repeated doses.

February 12th. After recovering from the ether she screamed but a few times and not as badly as before. Had had several hours quiet sleep. This morning she spoke for the first time in several days. Lies quietly in bed with eyes open but seems to take no notice of anything. Takes nourishment freely. Bowels had moved once. General condition much better and the ear was not inspected.

February 13th. Better: began to talk.

February 15th. Her attending physician telephoned that she was "all right and playing with her doll yesterday."

The recovery after this was without interruption.

The contemplation of this case suggests much of interest and instruction. An inflammation began in the right ear with some pain. This inflammation progressed to the neighboring regions and undoubtedly caused a localized inflammation of the dura mater near the tegmen tympani. Buck states that this is a frequent sequel in these cases. The path of connection with the dura mater may be along the sheaths of the small vessels which pierce the wall of the tympanum. In rarer cases a particularly easy entrance exists from the fact that union of the petrous and squamous bones has not taken place. This union normally occurs about a year after birth, but it may be delayed for several years, and it seems very probable that such was the condition here. Concerning the anatomical conditions I shall speak later on. The cerebral symptoms in this case point to a considerable degree of disturbance. The cephalic cry was typical. I regard the lack of speech as due to the general condition of unconsciousness rather than to aphasia from involvment of the speech centre. The symptoms were not those of aphasia, either ataxic or amnesic, and the inspection of the left ear showed that here the inflammation was just beginning and was probably of little importance in producing any of the symptoms. By paracentesis the blood vessels were depleted and free drainage established.

In treating so small a cavity as the tympanum it must not be forgotten that the space is very small. Two or three drops of pus may cause, by pressure, agonizing pain. And in the case just described the benefit of the depletion directly from the seat of disease was prompt and emphatic.

The second case furnishes a most instructive object lesson, interesting alike to the person who has a chronic suppuration of the ear and to the physician who has charge of such a case. I shall describe the facts of this case in the same order in which I learned them:

CASE II.—A woman, single, age twenty-nine, had been working in a shoe factory regularly and worked during the forenoon of November 9, 1895. On the afternoon of this day she came to this city to visit friends. I first saw her at about 12.30 A.M., November 11th. (She was reported to have a chronic otitis). On the 9th she had had some nausea and vomiting and some pain in the left ear. This condition continued on the next day without particular attention being paid to it, but in the afternoon she was worse and it occurred to her friend that she was very sick, and that it was difficult to understand what she said. She was seen by a physician shortly after this and again in the evening when her condition was serious.

She was a well-nourished woman lying quietly in bed; lips very pale. When questioned she tried to answer but the speech was an unintelligible babble. The countenance was not intelligent. Temperature on preceding afternoon had been 104; now reduced to normal by phenacetin; pulse 80, and had been weak at times during past few hours.

A hasty inspection of the left ear showed some bloody pus and signs of active inflammation. Patient etherized. There was now seen near the end of the external meatus considerable macerated

epithelium which was wiped off with the cotton probe, also pus and blood. Membrana tympani intensely red but *not bulging*. A paracentesis was done in the posterior segment without altering the appearance of the membrane in any way. A small amount of blood, of course, followed the incision. A slender probe passed into the cavity of the tympanum came upon roughened bone near the fenestra ovalis. During the operation the pulse became poor, and it seemed unwise to attempt anything more. The patient recovered from the ether; but died about six or seven hours later.

As no autopsy could be secured in spite of our earnest efforts, I do not care to speculate upon the precise pathological conditions. The fact that a chronic suppuration existed enables one to picture the gradual encroachment of the disease upon the bony walls of the tympanum. It is, of course, impossible to say just where the eruption finally took place into the cranial cavity. As already suggested, the ways are numerous. At best the upper wall of the tympanic cavity, the tegmen tympani, is very thin, frequently of paper-like thinness; the bony wall of the aqueductus fallopii, enclosing the facial nerve, is no thicker, and the sheath of one of the vessels which enter the tympanum is always a possible means of transmission. Knapp has reported a case where the pus burrowed down the space in which is lodged the tensor tympani, and thence into the cranial cavity. Occasionally the bony septum between the middle ear and the carotid artery or the jugular vein is so thin that the slightest carious softening would perforate it. And there remains the lateral sinus, sometimes in close proximity to the tympanum. The labyrinth is, of course, only separated from the pus-producing cavity by the membrane of the fenestra rotunda.

The aphasia in this case is interesting. In the presence of well-marked aphasic symptoms, either amnesic or ataxic, there is encouragement to trephine and drain the abscess which may be supposed to occupy the appropriate centre. The diagnosis, however, between abscess and meningitis is obscure. It seems to the writer that the acuteness of the symptoms in this case, the high fever, and the fact that a chronic abscess could hardly have existed without causing some symptoms, make the diagnosis probably acute lepto meningitis. Particularly as the brain trouble so quickly followed the acute exacerbation of the long-continued tympanic suppuration. It would have been justifiable, however, to have trephined in this case, had it been seen before the condition became so serious. From the patient's sister later I learned that she had scarlet fever when about thirteen, and since that time, "more or less," earache, but never any severe pain. Frequently spoke of dizziness.

On November 6th (Wednesday) she was in good health. On November 7th some discharge of pus occurred in the night. On November 8th she was all right as the flow was more free, but at noon on the same day said she went home (from work) to syringe the ear. On the 9th spoke of dizziness and compared her head to a sawmill; and from this time on the progress of the disease has been described.

CASE III.—A boy, age ten years, was referred to me October 5, 1895. There had been a suppurative discharge from the right ear for about three years. The pus was foul and occasionally bloody. No history of syphilis or tuberculosis.

A large polypoid mass was removed October 9th without particular trouble, and from that date careful antiseptic treatment carried out. I saw the patient about once in three days and always cleaned the ear thoroughly. I am confident that the details of the treatment were carefully observed. On November 9th he had so far improved that all home treatment was stopped. November 11th he was worse again and treatment resumed and kept up regularly but with little or no improvement. There was always a small amount of pus in the mouth of the Eustachian tube in spite of the most careful, local cleansing. On December 20th the membrana tympani seemed to be intact except for a small rounded perforation in the extreme anterior inferior quadrant. The boy could blow through the Eutachian tube and in this way force out a small amount of whitish pus. The drum membrane had of course lost its lustre and was retracted in its posterior segment. The walls of the meatus, next the drum membrane, partook of the general local condition. As the disease had shown no improvement for several days, and the condition of the drum membrane seemed to render any continuance of the similar treatment futile, the boy was etherized on December 20th and the malleus removed with the drum membrane in the usual manner, by cutting around the periphery of the membrane, cutting the tendon of the tensor tympani, the anterior and posterior ligaments of the malleus, severing some adhesions which had formed and the capsular ligament between the mallens and incus. A probe passed into the tympanum after the operation revealed roughened bone near the anterior surface of the promontory. The malleus was somewhat carious. The incus was not removed. Recovery from operation normal. During the next few days an abundant mass of granulations appeared in the middle ear, completely hiding the promontory. These were treated with solid nitrate of silver antiseptic applications used regularly, and the subsidence of

the disease during the next week was most gratifying. On January 1, 1896, there was a general improvement in the local condition, there being little pus, the granulations less abundant, and the promontory visible for the first time in several days. The general condition also markedly improved; the boy was brighter and heard better. On January 20th the ear was practically clean; dermatol, which had been blown in a week before, still remained dry. On March 23d his ear was reported dry and had been so since treatment was stopped. The hearing in this case could not be accurately tested, but the boy volunteered the information a few days after the operation, that he heard his teacher and the other boys better.

This case I have reported, not because it furnishes any remarkable phenomena, but because it shows what desirable results may be obtained in chronic suppurative disease of the middle ear, and because it forms an interesting supplement to Case II. And particularly do I report this because it is notorious that such diseases are often, very often, allowed to go untreated or treatment is relaxed after a few weeks have failed to effect a cure. A chronic suppuration of the middle ear is not a trivial, but a very serious disease. Where a carious process has become established, it is frequently steadily progressive to death. Of course the length of time before death depends upon the activity of the carious process and the direction it takes. The danger is appreciated by insurance companies, such persons not being acceptable risks. Cases II and III are similar; had Case II been treated earlier in life she would not have died of otitic brain disease. Had Case III been allowed to go without treatment he would have always had hanging over him the possibility of the same fatal termination. It will not do to say that death from this cause is so rare as to be of little practical importance. Between six-and seven-tenths per cent. of all deaths are due to otitic brain disease. This means a considerable number. It is too large to be ignored, particularly when we consider that most of the cases would be classed among the preventable diseases.

CLINICAL LECTURE.

DERMOID TUMORS.

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DEMONSTRATOR OF PATHOLOGICAL HISTOLOGY AND LECTURER ON BACTERIOLOGY IN THE UNIVERSITY OF PENNSYLVANIA.

ALTHOUGH in the early text-books of medicine and surgery occasional instances of the occurrence of dermoid tumors are mentioned, there seems to have been very little attention devoted to them until the time of Blumenbach (1785), who rejected the popular belief that they were punishments inflicted by God upon those who had been guilty of moral errors, and suggested that their formation was due to a definite *nisus formativus*. Baillie contributed information to the subject and refuted the old ideas by the discovery of an ovarian dermoid containing skin, hair, and bone in a little girl (a virgin) twelve years old. From this case Baillie was led to conclude that the genital organs of the human female were able in themselves, without fertilization, to generate and develop an embryo. A few years later Tumiati wrote upon dermoids, and regarded their formation as analogous to the double monsters. Still later, Meckel, in an interesting paper, concluded that these terratoma could originate from (1) conditions akin to pregnancy; (2) double monsters; and (3) the change of normal tissue into tissue of another kind in consequence of irritation. In 1854, Remak changed the views concerning these tumors by showing that they were congenital, and occurred at positions in which fetal clefts, fissures, or sinuses previously existed.

A dermoid tumor is one which contains mucous membrane, or skin. These tumors are generally cystic, and contain skin more often than mucous membrane, the skin being furnished with its various appendages. Although generally cystic, it is not unlikely that they originate as solid growths, and subsequently become cystic by the retention of sebaceous matter, the secretion of sweat glands, and the accumulation of exfoliated epithelium.

The skin, when present, does not cover the whole interior of the cyst, but, in the cases which I have examined, occurs in patches, more or less elevated, velvety in appearance, scattered upon the cyst walls. Beneath the skin not infrequently bone is present, occurring generally in flattened plates of irregular shape. Sometimes the bone is mandibular and contains sockets, from which teeth project through the epithelial covering into the cavity. The teeth are of various shapes; incisors, canines, and pre-molars occur. In the tumors which I have examined the teeth were without large roots, and resembled the milk teeth more than the permanent ones. Generally the teeth are well-formed and are white; sometimes they are deformed and discolored. The skin is generally furnished with an excessive number of sebaceous glands of large size. Sweat glands occur, but are less common. Typical hair follicles are often present, and bear hairs which are generally soft and downy but sometimes long and coarse. The hairs are nearly always blond. The hairs which occur in the tumors are always similar to those normal to the animal. In the negro, the hairs in the cyst are flattened and curly; in the sheep I have found small dermoids filled with soft wool; in the hog it is said that bristles occur, and Sutton states that the dermoids which occur in birds contain feathers. The skin patches are generally well supplied with villi, sometimes excessively so. Occasionally the skin covers smooth, rounded eminences suggesting mammary glands, and even provided with nipple-like projections. According to Sutton, these gland-like bodies are generally fatty in structure, but may be real mammary glands, provided with ducts passing through the nipple and secreting colustrum.

I have somewhere read, and am sorry that I cannot authenticate the statement with the reference, that nails and bones also occur in these cysts. The parts of the cyst-wall not covered with skin are generally covered by either squamous or columnar epithelium. The columnar epithelium is sometimes ciliated. In this epithelium, mucous glands may be present. The interior of the cyst is generally full of a mixed, smeary, granular material, which is made up of shed teeth, fallen or growing hair, epithelial cells and pearls, sebaceous matter, cholesterine and sweat.

We generally read about the epiblastic derivatives which occur in dermoids and give the tumors their name and it seems to be only within a recent period that it has been pointed out to us that the derivatives of the mesoblast and hypoblast are likewise represented. I have already pointed out that bone is present. Not infrequently cartilage is met with, not, however, as antecedent to bone, for the dermoid bones are generally membranous in origin. Striped and non-striated muscular tissues and much areolar tissue are also common, and are, of course, mesoblastic in origin. The hypoblast is probably represented by the columnar ciliated epithelium of the cyst and mucous glands which Wilms, to whose elaborate monograph I must refer later, regards as analogous to a reproductive tract, and as hypoblastic.

Cerebral tissue also occurs in dermoid tumors, especially in such as contain bone, and not infrequently scattered nerve cells resembling the motor nerve cells of the spinal cord, as well as nerve fibres, are found.

Before the time of Remak's paper, it was remarked that dermoid tumors occurred in the ovary and orbit with great frequency, but that certain parts of the body were seats of predilection does not seem to have been observed. Remak observed that they occurred by preference at positions in which the union of fetal clefts, fissures, or sinuses took place, and at which the skin could be included in the process of coalescence.

Continued observations upon the tumors has disclosed the fact that this is in great part true. We find them occurring in the great median fissures of the body, both anteriorly and posteriorly, in the mandibular fissure, orbital and naso-orbital fissure, bronchial clefts, in connection with the sutures of the brain case, and naso-pharynx. The fact, however, that they occur with great frequency in the ovary, occasionally in the testicle, and frequently in the abdominal and thoracic organs is opposed to the theory of Remak. Everyone knows that the ovary is the most frequent seat of occurrence. They have, however, been found in the pituitary body (Beck), in the olfactory bulb (Bonorden) in the esophagus (Hess), arch of the aorta (Stilling), lower lobe of the left lung (Cœlta), apex of the right lung (Salmonsen), and in the anterior surface of the heart (Pindus).

Meckel discovered a dermoid tumor of the diaphragm, from which twenty-one fragments of bone, four teeth, and considerable hair were removed. Ruysch found one in the omentum, Andral one in the mesentery, and Fränkel one in the peritoneum. Bonfigli describes one which was adherent to the liver and stomach through an intermediate band; it contained teeth. Modelung described one from the kidney.

Clearly Remak's theory cannot be made to comprehend all these conditions. The only conclusion to which we can come is that it explains some, but not all cases, and that in consequence dermoid tumors may be several different, yet similar things. The old writers saw no difference between dermoid tumors and certain ectopic pregnancies, inasmuch as in them what were regarded as fetal elements were discovered. This led to the supposition that they were cases of imperfect conception, a theory which might readily apply to a tumor of the ovary, but could hardly be applicable to one of the orbit. The next supposition was that they were cases of *inclusio fetus in fetu*, and the next that they were analogous to the double monsters. It is probable that there is truth in all of these theories. Some of the tumors are certainly formed by the inclusion of fetal tissue during the arching-over processes of embryonal development. Tumors of this kind have been described as *sequestration dermoids*.[1] They occur in the neighborhood of the fissures, which have already been pointed out. As the coalescence of the fetal parts is sometimes a little irregular, the tumors may not be situated exactly in the line of union, variation to one or the other side being rather common.

Similar tumors are formed by the persistence of fetal tubes, such as the thyro-lingual duct, the post-anal gut (as probably in the case just reported by Dr. Downes). These have been described as *tubulo-dermoids*. Both these forms are, of course, congenital, though the accumulation of materials in their interiors may not cause their size to be noticeable until late in life.

In classifying dermoid tumors, Sutton gives these two classes, then proceeds to describe those found in the ovary as *ovarian dermoids*. This arrangement makes his classification lack homogeniety, though it does not lessen its value. Indeed, how to approach the ovarian dermoids in any other manner than by placing them in a separate class is a question.

Ovarian dermoids are very common. Olshausen found that of 2275 ovarian tumors 80, *i.e.*, 4 per cent., were dermoids. They are more common on the right side than on the left. Mantel observed 191 cases, and found that 97 were on the right side, 67 on the left side, and 26 double-sided.

It is generally supposed that the embryonal cells of the developing fetus are in some manner "included" in the ovarian tissue, where they remain latent for a varying period, then take on a rapid development, with the production of tissues of the epiblastic type in irregular masses, *i.e.*, dermoid tumors. To me it is very difficult to understand just how these embryonal cells could be included in the ovarian tissue, and much more difficult to understand how they could remain latent for a period—as has really happened—of seventy years. Wilms doubts the congenital nature of the tumors, and in speaking of the theory under discussion, says that it serves to complicate matters, rather than to elucidate them.

If the tumors are not congenital, they must, of course, be developed in after life, and we must look in the tissues

in which they occur for the cells from which they can originate. Sutton suggests that the epithelial cells of the membrano granulosum are endowed with great vitality, and may be those whose energies are responsible for the development of the tumors and their contents. Wilms is, however, of a different opinion, and sees in the ovum itself a cell capable, when fertilized, of producing tissues of all kinds. For the elaboration of his theory, he brings forward the developmental cycle of the ovum itself, and calls particular attention to the extension of the polar granule. This is by embryologists regarded as a kind of male element in the female cell, which must be extended before the ovum can be ready for fertilization. If the powers of extrusion miscarries, and this granule remains within the ovum, Wilms sees no reason why parthenogenesis cannot take place, and an atypical and monstrous development of the ovum result with the production of a dermoid tumor instead of a fetus. Wilms supports his view by observations upon nineteen cases of ovarian dermoid tumors, which were subjected to a careful microscopic study. In each of them tissue derivatives of all three layers of the embryo were found—skin with hair, subaceous glands, sweat glands, and teeth, representing the epiblast; blood vessels, striped and unstriped muscle, and bone representing the mesoblast; and columnar ciliated epithelium in a rudimentary tube or sac, supposed to be analogous to the genitalia representing the hypoblast. So satisfied is Wilms that the ovarian dermoids originate in this way that he suggests abandoning the term dermoid, with the misconceptions attached to it, and using the term "rudimentary ovarian parasite" instead.

However, if the theory of Wilms be able to support itself against the currently accepted theories or not, it will only suffice to explain the ovarian tumors, and leaves us still in doubt concerning similar tumors in the lung, liver, kidney, and other internal organs. Unless these be congenital cases of *inclusio fetus in fetu*, or of inclusion of misplaced embryonal tissue in the developing organism, I am at a loss to account for them, and have no new theory to advance.

Dermoid tumors are benign in nature, as a rule, although their growth in some locations is accompanied by pain. A few rare cases are on record in which the epithelium in the tumors took on a carcinomatous development. The combination of dermoid and adenoma also occurs. Although benign, one case of seeming metastasis is reported by Emanuel, who observed the development of a dermoid tumor in the rectus muscle after removal of an ovarian dermoid.

Kollaczek has also reported a most extraordinary case of richly disseminated epithelial clumps over the entire peritoneum. In the centre of each nodule a hair was visible. Fränkel has also seen a similar case.

The rupture of an ovarian dermoid, and of other dermoids, is always a serious matter, because of the irritating foreign matter which escapes into the peritoneum, and because of the danger of the occurrence of disseminated tumors as a result.

The diagnosis of the dermoid tumors is not always possible before removal, and sometimes difficult afterward, especially if hair, teeth, bone, and other easily recognized characteristics are absent. The contents of the cyst are partly characteristic, for scarcely any other lesion furnishes the smeary, turbid material which can be evacuated from a dermoid tumor. Examination of the cyst-wall by the microscope generally makes the condition plain by revealing epithelium and its appendages.

At times one of the most difficult determinations to make is the separation of the dermoid tumors and ectopic pregnancies. Wilms points out that this should offer few difficulties to the microscope, because of the invariable presence in the ectopics, and invariable absence in the dermoids, of placental or decidual tissues.

CLINICAL MEMORANDA.

A CASE OF GUNSHOT WOUND OF THE INTESTINE—RECOVERY WITHOUT OPERATION.

By J. P. TILLERY, M.D.,
OF COAL CREEK, TENN.

JULY 30, 1893, I was called to see Effie L., aged six years, who was suffering from a gunshot wound inflicted by a 32-calibre Winchester rifle in the hands of her little brother. The bullet entered about 1½ in. to the right of the spine, on a level with the first or second lumbar vertebræ, and came out at the lower border of the left lung, in the axillary line.

Her home was two miles in the country and I arrived one hour after the accident. I found her suffering exquisite pain in the lower extremites. Stimulants were at once given to counteract shock, and an opiate to control the pain. I then ligated with a No. 12 silk ligature a piece of lung tissue 1¼ in. in length, which was protruding from the wound of exit, making slight traction to withdraw it sufficiently to avoid any infection from extraneous causes. Then, with a strip of iodoform gauze over the end of grooved director, I replaced the stump, leaving the gauze for capillary drainage. I then dressed the wound with gauze and cotton, throwing a broad bandage around the body to retain the dressing, and awaited developments. On the morning of the second day the temperature was 99⅜, and the dressing, being soiled, was changed and a fresh piece of gauze inserted in the wound. The child still complained of pain in the lower extremities, with very limited motion, which was due, I think, to concussion of the cord; the ball, in my judgment, having struck the body of the vertebra. Her symptoms were uneventful until the morning of the fourth day. When the dressing was changed it was found that the ligature had come off the stump, and, with the drainage gauze, was found in the dressing, and protruding from the wound to the extent of an inch was an intestinal worm (Lumbricoid). Taking hold of this unwelcome visitor I removed it, and found it to be about five inches in length. This was the first indication of injury to the bowels, there having been no indication of peritonitis. However, there had been some tympanitis from the second day.

The seriousness of the case was at once announced to the family and the possibility of an operation suggested. Dr. L. Jones Price of Knoxville, was called in consulta-

tion, and there still being no indications of peritonitis fourteen hours after discovering the worm, we decided to still await developments.

The wound was kept open until the eighth day, when it was found impossible to introduce the gauze. Her temperature was now normal and her recovery assured. The pain gradually subsiding in the lower limbs, after about six weeks she was able to walk, and up to this time has had no further trouble.

The question naturally arises in my mind as to what part of the intestinal canal was injured, and why did she escape peritonitis?

DR. GIBNEY'S METHOD OF TREATING SPRAINED ANKLE, WITH REPORT OF SEVEN CASES.[1]

BY F. D. REESE, M.D.,
OF CORTLAND, N. Y.

While persuing the pages of the *New York Medical Journal* of February 16, 1895, I came across an article entitled: "Sprained Ankle—A Treatment that Requires no Loss of Time; Requires no Crutches, and is Not Attended with any Impairment of Function."

The article was written by Dr. Gibney of New York. This method of treatment of sprained ankle, with rubber adhesive plaster, I have called by his name, although he claims no priority, but says Dr. Cotterell of London, used a similar process.

For a sprain about the external malleolus, take a roll of the best rubber adhesive plaster, about 1 inch wide. Begin at the outer border of foot, near the little toe, and carry it around the heel to a corresponding point on the inside of the foot. The next strip is applied vertically, and begins at the juncture of the lower and middle third of leg, and passes down along the tendo-Achillis around the heel and up the leg to a point opposite the place of beginning. The rest of the strips are applied in the same manner as these two, overlapping each other about one-third, until the ankle and instep are all covered, except one inch in the median line. This is left to guard against any possibility of cutting off the circulation.

Dr. Gibney says: "If the sprain involves the tarsal joint itself, or mid-tarsal joint, straps should be applied as follows: The first one begins on the inner side of the heel, passes back of the heel, below the external malleolus, over the dorsum of the foot, and terminates just below the ball of the great toe. The second one is started just under the external malleolus, passes back of the heel, over front of the foot, and terminates just under the outer side of the foot, near the small toe;" but this I would hardly deem necessary if the straps are applied as described, bringing the ends of the plaster within one inch of each other.

You can readily see that these strips of plaster become a closely interwoven and tight-fitting splint, that restricts motion, sustains the injured ligaments, and tendons, and prevents effusion. This treatment impressed me as being the ideal one, and I resolved to give it a practical test.

[1] Read before the Cortland County Medical Society, March 12, 1896.

The history of seven cases which have been treated by this method are presented, after which I leave it with the reader to decide whether the results from Dr. Gibney's method of treatment of sprained ankle justify the title of his article.

CASE I.—Charles R., aged twenty; sprained his right ankle as the result of a misstep while working in the woods, December, 1894. He had recovered from the more acute symptoms and pain when he came to my office, March 13, 1895, but could not then step squarely on his foot, and was compelled to support himself with two canes. Examining the ankle I found a subacute inflammation and tenderness on pressure around the external malleolus, and over the tarsal bones. Adduction and flexion of the foot cause more or less pain, and he said (which was evident) that he was unable to do his work. I applied the straps as described, and he was able, immediately, to abandon the canes, and walked with but a slight hitch in his gait. He was directed to wear the straps until they came off, if they continued to afford relief. Some months later he said he wore the straps for six weeks, and, that as far as he could see, he had made a perfect recovery.

CASE II.—Mrs. L., aged thirty-six, fell from her bicycle and sprained her left ankle, April 20, 1895. I saw her at her home the same afternoon. Around the external malleolus and over tarsal bones, the tissues were swollen, and there was extravasation of blood. Motion was limited and pain extreme. I applied the straps, and she was able to take a few steps around the room. Some weeks later she reported that she had suffered a good deal of pain for about a week, after which she gained rapidly and was well at the end of three weeks.

CASE III.—Mr. R., minister, aged fifty, slipped and sprained his left ankle June 26, 1895. His wife applied hot fomentations until the day following, when I was called to see him. I found him in bed and he declared to me, "It is a physical impossibility to walk." The tissues were slightly swollen, around and under the external malleolus, with some ecchymosis. There was great tenderness upon pressure, and limited motion. Applied the straps and patient was able to walk around the room with ease. The day following, he walked to a near neighbor's. This was on Wednesday, and the following Sunday, he walked twice to church and preached at both services. July 3d, changed the straps. There was some tenderness, and tissues were black and blue. On July 16th, discharged the patient.

CASE IV.—Mr. S., aged sixty-five, broommaker, came to my office on crutches, June 27, 1895, and gave the following history:

Fell off the porch, eight weeks before, and sprained, as he supposed, his left ankle. On examination I found he had not only sprained the ankle, but had fractured the fibula, low down. I applied the straps, which gave him a great deal of comfort as far as the ankle was concerned. Reapplied the straps July 13th, when there was less swelling, and the callous at the break was more easily felt. He was able to walk with one cane; from this time his recovery was uninterrupted.

CASE V.—Mr. B., aged thirty-three, came to my office

on crutches, June 28, 1895, suffering from a sprain of left ankle, which occurred two days previous. The ankle was badly swollen around external malleolus, and instep ecchymotic. Manipulation caused pain, and the foot was restricted in its movement. Applied the straps, which gave immediately relief, and he was able to step on the foot. Reapplied straps July 2d, and discharged the case, well, July 19th.

CASE VI.—Mr. H., aged thirty-one, slipped and sprained his right ankle, August 19, 1895. He called at my office the 20th, was then suffering great pain during locomotion. Found the ankle swollen about external malleolus, but no extravasation of blood. Applied the straps and the patient experienced immediate relief. He lost no time, but worked at his trade, which was that of molder. August 27th, I discharged the patient, but he was to wear the straps a few days longer.

CASE VII.—Miss K., aged twenty-four, was brought to my office July 17, 1895. History as follows: She had fallen and sprained the right ankle and tarsal joints. She could not step on the foot, and suffered a great deal of pain from it. The movements of abduction, flexion and extension were restricted. The tissues were slightly swollen over these joints. Applied the straps, but she was unable to stand. (I think this was in part due to fear.) She was greatly relieved of pain. July 22d, five days after, she removed the dressing, at the suggestion of a friend, believing the parts should be bathed. July 23d, she suffered so much pain that she sent for me, and I reapplied the straps, which gave her instant relief. Her recovery was uninterrupted and she returned to her work, fourteen days after the first application of the straps.

MEDICAL PROGRESS.

A Sympathetic Ganglion in the Human Ovary.—As the result of an histologic study WINTERHALTER (*Archiv für Gynækologie*, B. LI, H. 1, p. 49) has succeeded in finding in the zona vasculosa of the human ovary ganglion-cells of roundish or polygonal form, without demonstrable nuclei, provided with numerous short and long, thick, and simple processes, consisting of a single medullated nerve-fibre, corresponding in all other respects to the non-medullated fibres found in the ovary. The cell-processes vary in number, and may arise from the entire circumference of the cell, from only one side or from opposite sides; they vary in thickness individually, some continuing without change in calibre, others growing thinner as they proceed and finally breaking up into several fibres; some surround the blood-vessels concentrically. The cells lying in the vascular layer close to the large nerve-trunks send processes to and receive others from these trunks. The processes of all of the ganglion-cells terminate within the zona vasculosa; none could be traced into the follicular layer, but it is not impossible that they enter this layer with the blood-vessels, as many fibres, whose continuation could not be followed, accompanied the vessels. No ganglion-cells could be found in the follicular layer. The hypothesis is proposed that the irritation of the ripening follicle is conveyed to the surrounding nerve-fibres to the processes of the ganglion-cells in the vascular layer, wherein it accumulates until it reaches sufficient intensity to give rise through other nerve-processes to a motor impulse, resulting in the vascular changes characteristic of menstruation.

The Sterilization of Catgut.—At a recent meeting of the Berlin Medical Society SAUL (*Wiener klinische Rundschau*, 1896, No. 9, p. 154) described a method of sterilizing catgut by means of boiling alcohol, that he has found efficacious and satisfactory. A combination of alcohol 80 parts, carbolic acid 5 parts, and water 15 parts, effected the purpose best. HOFMEISTER (*Centralblatt für Chirurgie*, 1896, No. 9, p. 193) has employed the method of SAUL, but failed to secure satisfactory results. His own method consists in first hardening the crude catgut, wound upon rolls, by immersion for twenty-four hours in a four per cent. solution of formalin; then boiling in water for ten minutes, and subsequent hardening and preservation in alcohol, to which have been added five per cent. of glycerin and one-tenth per cent. of mercuric chlorid.

THERAPEUTIC NOTES.

Quinine-Intoxication.—MURRI (*Deutsche medicinische Wochenschrift*, 1896, Nos. 8, 9) reports the case of a girl, nineteen years old, who was seized with malarial fever which apparently yielded to treatment with quinine, but recurred. The paroxysms were repeated at irregular intervals, and from time to time quinine was taken. On one occasion an attack followed shortly after a dose of quinine, but the chill was more pronounced; vomiting also occurred; the urine presented an unusual dark-brown color, and on the following day the skin was discolored yellow. Matters thus continued for several months, the administration of even 7½ grains of quinine giving rise to toxic symptoms. On examination the spleen was found to be enlarged and hard. During a febrile paroxysm the urine contained peptone, serum-albumin, globulin, hemoglobulin, and urobilin, but no biliary pigment. Microscopic examination disclosed the presence of hyaline tube casts, renal epithelium, and lucocytes. Repeated examination of the blood showed a slight diminution in the number of red blood corpuscles, but no malarial parasites at any time. After the paroxysm urobilin and bilirubin were found in the blood. It was noted that the attack was repeated after the patient had eaten, and the digestive functions were deranged. In later attacks the liver was also observed to be enlarged. Under treatment with iron and rest in bed, the condition of the patient greatly improved. To confirm the opinion formed as to the relation of some of the attacks to the administration of quinine, this drug was on a number of occasions given, with the result of inducing nausea, vomiting, epigastric pain, and tenderness, a sense of coldness, redness of the face, hyperemia of the conjunctivæ, cephalalgia, elevation of temperature, acceleration of pulse and respiration, increased size of the spleen, tenderness over the liver, and changes in the urine and in the blood. The patient ultimately recovered her previous state of health, although it was possible, with the precision of a laboratory experiment, to reproduce the symptoms from which she had long suffered.

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SATURDAY, APRIL 18, 1896.

THE AMERICAN ACADEMY OF MEDICINE, AND MEDICAL TEACHING.

THE American Academy of Medicine will hold its next meeting in Atlanta, Ga., May 2d and 4th. The influence of this organization is far-reaching and powerful. And since it has turned its attention from the theoretical subjects, which engrossed its deliberations in its earlier history, to the vital practical problems of the day, the value of its work cannot be overestimated. The wisdom of concentrating all the business of each meeting upon one important economic subject is apparent. Last year the subject of discussion was the Hospital and Dispensary Abuse and the wide problems envolved in the general relation of the profession and the community to the dependent classes. The accumulated statistics then presented, and the abuses there ventilated, have permeated thought and given direction to reformatory measures that will gradually work out, it is believed, the practical solution of these difficulties. At the meeting next month the question for discussion is one of great and vital importance. The program embodies a discussion, by prominent medical teachers from all sections of the country, upon METHODS OF MEDICAL TEACHING.

Probably no subject connected with the profession demands a more thorough shaking up than this. It is full of the dry bones of tradition and custom, whose origin dates from the dark ages, when books were unknown and knowledge passed only by word of mouth. The field of knowledge was limited, and the means for personal investigation did not exist. Now the field is boundless, and the authorities and instruments for personal investigation are in every student's hands.

Formerly the memory was about the only faculty that was cultivated. And the isolated facts that were crammed into the student's mind and held, as it were, by brute force of memory is wearisome to recall.

Memory has its place and it is an important one. The power to grasp and comprehend facts, however, is the foundation of all knowledge. To retain them in the mind is important. But the faculty of utilizing those facts, of putting two and two together, and reaching the logical conclusion is the distinctive attribute of the human mind. In the processes of acquiring a medical education these faculties of the mind—the perception and the reason—can be disciplined and developed as well as in the pursuit of the academic degree and should receive vastly more attention.

This is the great principle that underlies all education. It is candidly and frankly recognized by medical teachers, but how it can be applied in our medical schools, to all the detail of the various branches, is the problem which our leaders of thought must work out to a practical conclusion. This is the question upon which we are looking to the deliberations of the Academy to shed a flood of light.

IMMORAL INFECTION IN HOSPITAL WARDS.

MEDICINE is such an engrossing profession, that the physician is apt to overlook many matters and many opportunities which lie just outside his routine work, but which cross his path daily. We question seriously the propriety of the physician arrogating to himself the duties of the clergyman, as some well-meaning persons believe he should, yet no conscientious practitioner can be oblivious to the fact that his indirect influence for good or evil is tremendous. We wish, at present, to call

attention to only one phase of this moral obligation in connection with hospital service.

Passing through the female wards of almost any hospital, one will see a plentiful representation of prostitutes, from the blear-eyed hag, in whom the ravages of alcohol and syphilis have obliterated all that is attractive and womanly, to the girl just entering on a career of shame, who has learned the art of making the best of each grace and charm without having, as yet, acquired a repulsive boldness. Some of these women are plainly in need of medical aid, suffering from venereal disease, from various pelvic disorders, afflicted with some general disease, or awaiting confinement. Others, again, show no more evidence of serious illness than do the occupants of some of the private rooms, who spend their lives in the pursuit of relief from ailments due to imagination and idleness. Why is it that a certain class of quasi-invalid prostitutes seek the hospital? Partly because—comparatively few of the women to whom we refer being city charges—a reasonable board rate affords medical attendance and nursing, with many little luxuries and an opportunity for rest and idleness; partly because houses of prostitution recruit their forces, to a large extent, from the innocent but frivolous and shallow girls to be found in public hospitals. Such girls look forward to the return of health with anxiety rather than pleasure. Discharge from the hospital means, to them, to be thrown out into the world without money, often without proper clothing, usually without assurance of work. What wonder that such girls are flattered by the attention of prostitutes, whose soft hands, jewels, fine attire, and imitation of good breeding, all suggest to the ignorant that they belong to a real lady? What wonder that too many follow the line of least resistance, away from a life of toil to the physical comforts and idleness of the brothel?

The evil to which we have referred is as real as though it was caused by a germ, its suffering is as great as though it were felt in physical centres rather than by the mind. Leaving aside the strictly religious and moral aspect of the question, it is as much the duty of a physician to prevent the misery entailed by a life of prostitution as to adopt sanitary measures against the spread of scarlet fever or diphtheria through the hospital. And, to complete the analogy, prophylaxis must be along the same line—isolation of the infected ones, so that they may not contaminate others by their effluvia.

GENERAL SURGERY.

A CRITICAL RESUME OF RECENT PROGRESS IN CEREBRAL SURGERY.

THE discussion on cerebral surgery at the recent meeting of the New York State Society does not offer much encouragement to the enthusiast in this branch of surgery. The conclusions reached must be of value, as they expressed the deliberate opinion of several prominent neurologists who have had a large experience in this class of cases. It cannot be truthfully charged that surgeons have ever been overenthusiastic about operations on the brain. Ten years ago it was expected that the advances in cerebral localization would open up an avenue for successful surgical interference on many cases of cerebral disease. It must be acknowledged, however, that this expectation has not been realized. It is perhaps as well that the views of the neurologists referred to, were somewhat discouraging, for it will tend to limit operative interference in questionable cases, and the inference must naturally be drawn that in the future, cases for cranial operation, especially when for the cure of epilepsy, will be more carefully selected than has been the custom during the past few years. The difficulties in the way of correct diagnosis ought to stimulate the diagnostician to a more careful observation, and a more accurate classification of the characteristic symptoms of every case, so that he may be able to reach a reasonably certain decision as to the possibility of relief by means of operation. At the present time it certainly appears as if but a small percentage of patients, who suffer from cerebral disease, can be relieved by surgical interference. The most favorable results have been obtained in abscesses, due to ear disease, and in sinus thromboses. It is true that some brilliant cures have followed operations for tumors, or for the relief of Jacksonian epilepsy when due to traumatism, but such results are exceptional. Reports of cases both of failure and of success, are slowly accumulating, and as the number increases, the prognosis of such operations must at least become more

accurate, if not more favorable. In a department of surgery where the cases can be counted by the score only, instead of by the thousand, as in some specialties, the history of even a single case must be of interest, and often of great value.

The uncertainty of diagnosis is only one reason why results are apt to be unsatisfactory. There are three more potent reasons: first, the character of the lesion; second, its inaccessibility; and third, the impossibility of its removal without the substitution in its place of other lesions of equal or greater severity, Many cerebral tumors are either malignant or tubercular. The difficulties attending the removal of cancer in other regions, apply with still greater force to cerebral growths of this character. The same difficulties, though to a less degree, apply to operations on tubercular tumors. Since the appearance, in 1889, of Bergmann's monograph on tubercular tumors of the brain, operation upon these growths, has not been regarded with much favor, by either neurologists or surgeons. His objections to surgical interference in this class of cases were, first, that following the operation, there was apt to be extension of the tubercular process to the coverings of the brain, resulting in a fatal tubercular meningitis, and second, that removal of the growth was apt to be incomplete, and that recurrence was almost certain and generally rapid. Recent experiences have, however, somewhat modified this unfavorable view. A number of apparent cures have resulted. In a recent article by Krönlein, fifteen cases of operation are reported. Four of these patients were permanently cured, and two were temporarily improved. The mortality was great, seven having died as the result of the operation, though in four of these, the tumor had not been found by the surgeon. It must be granted that there are cases of cerebral tuberculosis which should be subjected to operative interference. They are, however, exceptional, as either general tubercular infection or advanced disease of any other single organ must contra-indicate operation. The same is true of malignant growths. A few successful cases have been reported, but we cannot expect much progress to be made in this direction. Often, however, the nature of the tumor cannot be known and if from the symptoms it can be judged that there is a probability of its removal by operation, an exploratory opening in the skull is certainly justifiable. The danger of this procedure is slight, and a benign tumor may be exposed.

The inaccessibility of the growth will always prove a great barrier to the successful removal of brain tumors. Tumors at the base of the brain or buried deeply beneath the cortex, will always defy the operator. The damage which necessarily must be done to the cerebral tissue in order to reach them, is the factor that nullifies the operation.

A very complete account of all operations for tumors of the brain has been made by Starr. Up to 1896, he has collected 162 cases. In 48, the tumor was not found by the operator. In 7 cases it was found, but could not be removed. In 107 cases the tumor was found and removed; 72 of these patients recovered, and 35 died. Considering the hopeless nature of such cases, this mortality is certainly not excessive.

The results of operation for the cure of epilepsy have been very disappointing. In comparatively few cases is resort to surgery justifiable. It is exceptional that autopsy on such cases reveals any gross lesion within the cranium. And a favorable result is to be expected in such cases only where there is a visible lesion, so situated that it can be easily reached and safely removed. The most favorable results are to be expected in cases where there is an irritative lesion pressing on the cortex of the brain. If there is a reasonable chance that such a lesion exists, operation is demanded. For example, when the convulsions follow a traumatism, the irritant being a depression of bone, a thickened dura, an organized blood clot, a cyst, or an abscess, the chances of cure are good, provided that years have not elapsed between the time of injury and of operation. In cases of Jacksonian epilepsy without a traumatic history, the outlook is less favorable. In many of these, the lesion is one that cannot be removed by operation.

The excision of that part of the cortex which governs the affected muscles but rarely gives permanent relief. In its place there forms a cicatrix which remains as a source of irritation; indeed, after many cerebral operations, this cicatricial tissue will prevent a permanent cure. The

new tissue may not at first act as an irritant, and on this account many of the reports of "cure by operation" are valueless, inasmuch as sufficient time has not elapsed after the operation to fairly decide whether or not a cure has been effected. No definite conclusion can be drawn until a year at least has elapsed. It must not be overlooked, however, that in certain cases where radical operation is impossible it is justifiable to make an opening in the skull for the relief of intra-cranial pressure. Such a safety valve will often temporarily relieve the symptoms, and may even permanently mitigate the violence of future attacks.

The operative technic of cranial surgery varies somewhat, according to the training, mechanical skill, and experience of the surgeon. On one point all are agreed, *i.e.*, the vital importance of strict asepsis or antisepsis. Various methods are employed for exposing the interior of the cranium. The older method, according to which one or more buttons of bone are removed by the trephine and the opening enlarged by the *rongeur* bone forceps is still frequently employed. If a large opening is required it can be made with greater rapidity, according to Horsley's method, by means of the ordinary amputating saw and his massive bone forceps. The employment of either of these methods, however, prevents the replacement of the bone. If it is considered undesirable to leave a permanent gap in the skull—and this opinion is entertained by the majority of surgeons—the flap method must be employed. The curved incision in the bone can be made by either the chisel or a saw worked by an electro-motor and, the base being broken, a window of the desired size is made, through which the necessary inspection and manipulations can be accomplished, after which the flap is replaced. If chisels are used, hard blows must not be struck by the mallet, as serious results have been attributed to its impact. Cases have been reported where considerable shock to the respiratory and circulatory centres has been thus produced, and where subdural hemorrhages have resulted. If the saw be employed this concussion is avoided, and the section is more rapidly made, but in spite of every precaution the best saws will occasionally fail at the most critical moment, and there is also the disadvantage that it is difficult to perfectly control its movements and hence injury to the dura and brain is apt to occur. Until recently, the saws employed have been very thin, so that it has been almost impossible to see the bottom of their groove and to ascertain what depth has been reached. The blades are now made thicker, and this improvement ought to lessen the risk to the brain and its membranes. In spite, however, of many ingenious devices of this nature, the use of the saw or burr is not altogether satisfactory. If one or other is to be employed, it is probably wiser to make with it a partial section only of the skull, and complete it with light blows of the chisel. A new instrument, combining saw and forceps, has recently been devised by Dahlgren of Upsala. He claims that he can cut out a large flap in *four* minutes. It is frequently found, however, that instruments will perform such perfect work in the hands of their inventors only, and the description of these forceps would not incline one to believe in the rapidity of action claimed by its originator. Horsley, whose experience is very large and whose rotating saw is one of the best, has abandoned its use and disapproves of the flap operation, as he see no special disadvantage in leaving a permanent opening in the skull. It is certain, indeed, that patients who have large openings in their skulls suffer no inconvenience from the bony defect; still it seems wiser to restore the continuity of the cranial vault, provided this can be accomplished without subjecting the patient to additional risk. The popularity of the flap operation is increasing, but as yet, there are imperfections in the technic of this method. A larger experience is needed before it can be definitely decided which of the two plans gives the most satisfactory results.

ANDREW J. MCCOSH, M.D.

ECHOES AND NEWS.

THE third of the series of Cartwright Lectures of the College of Physicians and Surgeons (Medical Department of Columbia University, New York) will be given in the hall of the Academy of Medicine, No. 17 West Forty-third street, New York, on Wednesday, 22d, at 8.15 P.M., by George S. Huntington, A.M., M.D., Professor of Anatomy in Columbia University. Third lecture: "Morphology of the Bronchial System and its Relation to the Pulmonary Vascular Supply in Mammalia."

It is with pleasure we learn through an English exchange that "a sum of £2300 has been received by the Huxley Memorial General Committee. This will be sufficent for the erection of the statue of the great scientist in the Natural History Museum, and for the establishment of a medal at the Royal College of Science."

Dr. Francis J. Quinlan has been appointed laryngologist and rhinologist to St. Vincent's Hospital, in New York City.

The sale of cigarettes or material for making them is now prohibited in the State of Iowa by an act of its late legislature.

It is reported that measles have invaded the White House, and that at least one of the President's little daughters is suffering from this disease.

One of the New York theatres is shortly to produce an American comedy under the title of "A Fashionable Physician."

New possibilities in the use of the Röntgen rays have been discovered by Dr. Frenzel of Berlin. Twelve sheets of bromide of silver paper laid one upon the other were placed in the holder and the skiagraph of a frog taken. The image was equally well defined on each sheet.

Leprosy has broken out in the Russian Baltic provinces with something of the virulence it possessed in the Middle Ages. Several hundred persons are said to be afflicted with the disease, and the Livonian Diet has just taken measures for isolating them at the cost of the state.

The health officers of the western cities evidently do not hold the virtues of "Divine Healer" Schrader in very high esteem. He was banished from Cincinnati, arrested in Newport, and when last heard from, other places were waving him off with inhospitable gestures.

The lay press has recently suggested, with more good judgment than is usual with them when discussing medical matters, the use of cold water and massage for congestive headaches. In deference to a time-honored respect for prophylactic methods, we beg to amend the above by suggesting that a strict adherence to cold water internally may render the massage unnecessary.

Under the administration of the newly enacted law in New York, known as the Raines bill, the druggists are exceedingly cautious in dispensing liquor, even upon a physician's prescription, unless his standing is known to them. It is also probable that the products of the soda fountains will be less contaminated with alcoholics in future.

A portable crematory for military purposes has been invented by a Polish engineer. It has the appearance of the army baking oven, but is much higher and heavier, and is drawn by eight horses. It is intended for the disposal of the bodies of soldiers killed in battle, so as to avoid the danger of epidemics from the burial of great numbers of men. Each German army corps, it is said, will be equipped with one.

The National House of Representatives has passed a bill taxing the manufacture and sale of an article of diet known as "filled cheese." This is said to be a cheap, but not unwholesome, substitute for ordinary cream cheese, and is made from skimmed milk and lard oil.

Dr. Alvah H. Doty, health officer of the Port of New York, has just returned from a trip through Mexico, and a visit to Havana. In the latter place, he found very unsanitary conditions existing, and saw a moderate number of cases of yellow fever. From present indications he expects these to increase as the season advances, and as a matter of precaution, all passengers who do not bring a certificate from Dr. Burgess, the U. S. Marine Hospital Inspector, residing in that city, will be held after May 1st at the New York quarantine station, until five days have elapsed after their departure from Cuba.

A bill before the National House of Representatives, providing for the adoption of the metric system of weights and measures in the various departments of the United States Government, was passed last week, but later reconsidered and finally referred back to a committee. It is said that the intelligent members of the House strongly favor the measure, and there is little doubt of its final adoption.

A dozen or more of Cincinnati's most eminent physicians and surgeons have inaugurated a movement for establishing a "Doctors' Headquarters." The offices of the promotors will be located therein, and a telephone on every floor, connecting with each office, serves the purpose of all. The prime object of the plan is to provide means whereby an urgent call may receive immediate attention.

The New Orleans *Med. and Surg. Journal* for April, after commenting upon the recent editorial in the Medical News discussing the care of leprosy in New York, and the country generally, says: "The State of Louisiana has attempted legislation in the matter, and the efforts at segregation are being watched with much interest. We have much to do at home in the matter, before the wheels of a national government can be even got ready to move. The medical profession of the State should make the effort, before enforced Federal legislation shows us how to do it."

At the Am Urban Hospital in Berlin 411 diphtheria patients were treated in 1894–95, 255 of whom were discharged cured. Of 245 treated with serum, 28 per cent. died, while among the 146 who were treated otherwise the mortality was 42 per cent.; 53.2 of the serum cases were serious, 23.7 severe, and the rest slight. No evil effects were observed to follow the use of the serum, and its effectiveness was proportionate to the earliness of its application and the strength of the first doses. The hospital authorities infer from this that it is not an infallible, but a highly valuable remedy.

The celebrated Professor Langerhaus, Medical Director of the Moabit Hospital, startled Berlin by causing the following announcement to be published in the papers: "Our darling Ernest, in perfect health, aged twenty-one months,

died suddenly in consequence of an injection of Dr. Behring's diphtheria serum." Immediately after the death of his son, Professor Langerhaus sealed the vial containing the serum used in giving the alleged fatal injection, that it might be examined by the local authorities.

The professor states that his son was in normal health, and was inoculated with the serum merely as a precaution, a housemaid in the family having diphtheria, and he having lost two children in 1895 from the same disease. The autopsy held by the public authorities upon the body of the infant left the charge that he was poisoned by an injection of Dr. Behring's diphtheria serum unproved.

ATTENTION is directed in the current number of *The Practitioner* (London), to the decadence in the medical department of the British army, due to a lack of attraction in the service. Evidently much the same conditions exist as those to which we recently called attention in the medical corps of the U. S. Navy. Unless the present reluctance on the part of both nations to recognize the real worth and dignity of the medical staffs by promotion to rank and pay in better accord with the qualifications demanded, a manifest weakness, if not a fatal palsy, in this important arm of the service must inevitably follow.

IT has been determined by experiment that the typhoid bacilli will exist in oysters for at least a month after infection, and probably actually multiply both in the body and juice of this popular article of diet.

A RECENT report made and signed by the superintendents of six London hospitals upon the use of antitoxin in 2182 cases of diphtheria contains the following conclusions: (1) "A great reduction in the mortality of cases brought under treatment on the first and second day of illness. (2) The lowering of the combined general mortality to a point below that of any former year. (3) The still more remarkable reduction in the mortality of the laryngeal cases. (4) The uniform improvement in the results of tracheotomy at each separate hospital. (5) The beneficial effects produced on the clinical course of the disease."

PROFESSOR HAFFINE has returned to India, and will continue his anti-cholera inoculations. At the suggestion of the India Tea Association, the coolies at Calcutta, who enlist for work in the gardens, will be subjected to his method.

THE Royal Commission on Vaccination of Great Britain is holding weekly meetings at present, with a hope of drawing up and presenting to Parliament during its present session a final report including evidences obtained from the present outbreak of smallpox at Gloucester. Dr. Sidney Coupland has been commissioned by it to visit Gloucester and report upon the epidemic and its causes.

THE U. S. Navy Department at Washington received last week a statement from a naval surgeon on duty at Hong Kong, China, that the black plague had broken out at that port, but for commercial reasons the municipal government endeavored to keep the fact secret. Orders have been given to guard against importation of the disease at San Francisco. This acute infectious disease, if we may judge from historical accounts of its first invasions of Europe in 1347, and again in 1665, is a veritable "Angel of Death" sparing neither bird, beast, nor man. During the former epidemic, Venice alone lost 100,000, or seven-tenths of her population; in Genoa scarcely one-seventh of the inhabitants survived. As a result of the last visitation in London there remain to this day many mementos of the plague in the shape of green plots in the centre of the most populated districts, marking the spots where thousands of corpses were buried in deep pits with tons of quicklime.

THE trustees of the Jefferson Medical College of Philadelphia have purchased a large property at the corner of Tenth and Walnut streets, immediately adjoining the present college and hospital buildings, on which they intend erecting a new hospital. The present hospital building is inadequate because of the great number of patients presenting themselves for treatment, the situation of the hospital, in the centre of the city, bringing many poor to its doors. It is said that von Esmarch, on visiting the Jefferson hospital some years ago, remarked that other institutions had finer buildings, but that this hospital was the greatest working hospital he had seen in America. The plans of the new building are such as to give not only satisfactory opportunities for treating patients, but also for teaching clinical medicine. Immediately on the completion of the new hospital, the present college building will be torn down and rebuilt in accordance with the most recent methods of teaching practical medicine.

THE following medical societies and associations will meet during the month of May: American Academy of Medicine in Atlanta, Ga., 2d and 4th; Association of American Physicians in Washington, D. C., 2d and 4th; American Gynecological Society, in New York, 26th, 27th, and 28th; American Medical Association in Atlanta, Ga., 5th to 8th; American Laryngological Association in Pittsburgh, Pa., 14th to 16th; American Orthopedic Association in Buffalo, N. Y., 18th to 20th; The Association of Military Surgeons of the United States in Philadelphia, Pa., 12th to 14th; American Climatological Association in Lakewood, N. J., 12th and 13th; American Pediatric Society in Montreal, Can., ——; Connecticut Medical Society in New Haven, 27th and 28th; Illinois State Medical Society in Ottawa, 19th to 21st; Kansas Medical Society in Topeka ——; Louisiana State Medical Society in New Orleans, 5th; Missouri State Medical Association in Sedalia, 19th to 21st; Medical Society State of North Carolina in Winston, 12th; Ohio State Medical Society in Columbus, 27th to 29th; State Medical Society of Pennsylvania in Harrisburg, 20th; Washington State Medical Society in Tacoma, 19th to 21st.

DR. THEODORE B. HYSLOP of St. Mary's Hospital Medical School, London, in discussing the mental propensities that appear late in life, remarks that "the main features of senility tend to group themselves into three main types, which have been termed respectively, dotage, anecdotage, and *table d'hôte*-age."

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

General Meeting, April 2, 1896.

JOSEPH D. BRYANT, M.D., PRESIDENT.

THE CLINICAL ASPECTS OF GLYCOSURIA.

DR. WILLIAM H. DRAPER read a paper with this title. He said that clinically glycosuria, like albuminuria, is a symptom, and hence is of variable significance. There was a great difference in the personal appearance of glycosurics, as well as a great variety in the derangements of health for which they seek relief, and in very many instances the glycosuria was first discovered by some specialist who has been consulted by them. No theory seems adequate to explain all the cases of glycosuria coming under observation. Physiological chemistry had demonstrated that glycogenesis was sometimes the result of an interruption in the metabolism of the carbohydrates, and sometimes due to a derangement in the metabolism of the nitrogenous elements of food. This fact, together with the knowledge that it developed after certain diseases and traumatisms of the nervous system, constituted about all our information of the pathology of glycosuria. We recognized clinically two varieties: (1) a variety in which it is apparently the result of imperfect combustion of the carbohydrates of food into their ultimate constituents, and in which the withdrawal of the carbohydrates and the substitution of animal food causes a disappearance of sugar from the urine; and (2) a variety in which the glycosuria persists even after the withdrawal of carbohydrates from the diet. The first form is mild and more or less controllable, while the second is grave and progressive. While it had been generally accepted by the profession that glycosuria was intimately associated with the glycogenic function of the liver, Pavy had always stoutly maintained that the liver was a sugar-destroying, and not a sugar-forming organ. From a chemical point of view, glycosuria is essentially a disease of suboxidation, but the cause of this suboxidation still remains shrouded in obscurity. From clinical observation, it would appear that in a certain small proportion of cases saccharin diabetes is due to direct heredity, and that, in a much larger number of cases, the disorder may be traced to an inherited constitutional incapacity for the easy and complete digestion of the carbohydrates—the starches and sugars. It was a matter of common bedside observation that gouty individuals found great difficulty in digesting any large quantity of sugar or starch food; and in view of the now very generally accepted belief that lithemic gout is a congener of glycosuria, this fact is significant. The speaker said that personally he had very frequently noticed the occurrence of glycosuria in gouty families. This feeble power for the digestion of starches and sugar was often forced upon the attention of the physician in his efforts to properly feed infants, as well as in the management of certain forms of dyspepsia. His own experience tended to confirm the statement expressed by some writers that the Hebrews appeared to be especially prone to glycosuria, and he would attribute this to their indoor life.

The disease, diabetes, is most commonly observed between thirty and sixty years, and more frequently in the male sex. The comparative infrequency of this disorder in early life might be explained by the general activity of the nutritive processes at that period, and the more common occurrence in men by the greater tendency to excessive eating and drinking, as well as greater exposure to traumatism. It could not be denied that sometimes physical strain or mental shock caused the production of diabetes, but he hardly thought that one was warranted in including excessive muscular exertion and paludal poisoning among the predisposing causes. Glycosuria occasionally occurred in persons without apparently affecting their general health, at least for a considerable time. In the mild form, only an ounce or two of sugar was voided in the urine in twenty-four hours, and while this could be made to disappear by an appropriate restriction of the diet, a very slight indiscretion would often cause it to return, and to remain for a considerable time. As a rule, the mild form after awhile passed into the grave variety. The most characteristic symptoms were tissue-wasting and progressively waning strength. The latter was particularly striking, and was hardly equaled by any other disease, except possibly typhoid fever. It should be remembered that in glycosuria there was a failure to evolve more force than was absolutely necessary for the demands of organic life. The other prominent symptoms —the thirst, the diuresis, and the inordinate desire for food—were all indications of the effort made by Nature to eliminate the sugar and repair the damage. There was often more water passed than was ingested during the same period of time, and this readily explained the desiccation of the tissues so characteristic of the disease. Among the more important complications of glycosuria were neuralgias, particularly of the sciatic distribution, parasthesiæ of various kinds, eczemas and other cutaneous manifestations, and albuminuria. It should be the rule when endeavoring to treat a specially obstinate case of neuralgia to examine the urine for sugar. The albuminuria associated with glycosuria is usually slight, although where it alternates with glycosuria, it may be considerable, and the diuresis very copious. This complication was more commonly observed in cases of senile glycosuria, and is probably, in most instances, an indication of the interstitial nephritis found in gouty or lithemic subjects.

As to the prognosis of this complication it might be said that individuals suffering from both albuminuria and glycosuria often enjoyed a very fair degree of health for a long time. It was well known that diabetes was also very frequently associated with obesity. One of the most troublesome complications of glycosuria was the obstinate constipation, which resisted, in many instances, the most powerful purgatives. There was an acute form of glycosuria, in which the patient usually gave a history of traumatism or great mental and physical strain, which rapidly went on to fatal termination. This, he thought, was probable nothing more than an acute exacerbation of an undiscovered mild glycosuria. As a rule, even in severe cases of the so-called "mild form" of glycosuria, the prognosis was good so long as the patient could be kept under con-

trol, and the disorder might not be incompatible with good and useful health for years. It should be remembered, however, that after a time these mild cases usually passed into the grave form. When the glycosuria persists in spite of a rigid anti-diabetic or animal diet, and especially if associated with an excess of urea in the urine, the prognosis was unfavorable.

There are two principles underlying the rational therapeutics of this disease, viz.: (1) The withdrawal of the carbohydrates; and (2) hastening the transformation of the carbohydrates into their ultimate elements. Of the many drugs, especially recommended for meeting the second indication, it should not be forgotten that not one had been successfully used except in connection with the restricted diet. As both iron and alkalies had the power of hastening oxygenation, they were of service in connection with the dietetic management—indeed, this combination of iron and the alkalies was probably the most useful of all that had been recommended. It was a significant fact that this particular method of medicinal treatment appeared to be of the most signal service in those cases of glycosuria occurring in gouty or lithemic subjects. The inhalation of oxygen gas and the use of enforced exercise would seem to be rational measures, but they had not proved successful clinically. Opium was considered by many to be the best drug for controlling glycosuria, and probably, when combined with the alkalies, it constituted the very best therapeutic method, outside of the dietetic treatment. The latter could not be considered at this time in detail; it could only be stated that the principle of the anti-diabetic diet was the conversion of the physiological type of man from an omnivorous to a carnivorous animal, and that at the present time this change could be effected with much less distress and difficulty than might be supposed.

DR. WILLIAM H. THOMSON, in discussing the foregoing paper, said that notwithstanding the advances made in physiology and physiological chemistry, the disease, diabetes, remained as great a mystery as ever. He had long felt that it was not at all improbable that Claude Bernard had led us off on a wrong scent, for there were many facts that made it difficult to believe that derangement of the liver was the cause of glycosuria. Thus, in cases of sudden hyperemia of the liver, of brown induration, of neoplasm, of cirrhosis of the liver, glycosuria rarely occurred, and yet in these conditions its function was undeniably disordered, in some instances to a very great degree. During the past ten years some exceedingly interesting physiological experiments had been carried on with regard to the relation of the pancreas to the development of glycosuria. These had revealed the fact that if the whole pancreas were extirpated, glycosuria would ensue, but that if only a small portion of this gland were allowed to remain, and even of the small portion left behind were transplanted to another part of the abdomen, there would be no glycosuria. Further investigation had shown that there were certain cells in the pancreas which produced a secretion which, when circulating in the blood, prevented the production of glycosuria. When one recalled in this connection the well known and extensive changes in nutrition which follow the removal of the testicles, and the profound changes occurring in the osseous system consequent on the removal of that insignificant little gland, the pituitary body, it was evident that there was much yet to be learned regarding the exact relations of the glands to the human economy. He thought it quite possible, therefore, that diabetes might have a relation to the genesis of the glycolytic ferment.

Turning to the clinical aspects of glycosuria, Dr. Thomson said that age was a most important element in the prognosis—that younger the patient, the worse the prognosis. In an old person, glycosuria did not seem to shorten life, but, on the contrary, sometimes seemed to be a positive benefit. He did not believe that the glycosuria of old age was the same disease as glycosuria occurring in young subjects, the clinical manifestations were so totally different. If he might be allowed to propound a theory of diabetes, he would say that, as it had been conclusively proved that the starchy elements of the food were burned up in the muscles and not in the liver, and as in diabetes the difficulty was from the loss of the power of burning up the sugar, he thought it quite possible that diabetes might be due to a disturbance in the innervation of the muscles. This theory, at any rate, would satisfactorily explain many of the well-known clinical phenomena of the disease.

DR. A. H. SMITH said that one point seemed to be quite clear, and that was that the starting point of diabetes was a perversion of nervous influence. He had had in his own practise a striking example of the immediate development of diabetes as the result of profound mental shock, in the case of a gentleman who had been in good health until he had been involved in a runaway accident, after which he had promptly become diabetic. He had ascertained from the actuary of the life insurance department of the Brotherhood of Engineers that locomotive engineers were about seven times more liable to diabetes than other classes of men, and from the same source the probable reasons for this had been stated to be: (1) The constant jarring in the engine-cab; (2) the alternate cooling and heating of the body as the engine was in motion or at rest: and (3) the constant and excessive mental strain involved in this occupation. Dr. Smith said that he had came to think that the moment sugar began to circulate in the human organism, it continued to irritate the sensitive centre from which the disease had originated, and that in this way a vicious circle was established. He considered the element of heredity of so much importance, that he believed that a diabetic father should exercise extreme care in the selection of a business for his son, so that the latter would not be subjected to such strain or excitement as would be likely to develop the disease. He could confirm all that had been said by the previous speaker regarding the comparative mildness of glycosuria in old persons, and in this connection he also wished to utter warning against a too rigid enforcement of the anti-diabetic diet which, he believed, sometimes was responsible for precipitating the condition of acetonemia.

DR. W. G. THOMPSON said that while indirectly heredity was an important element in the production of dia-

betes, it should be remembered that many people gave evidence of an inability to easily digest starchy foods, and yet they failed to develop glycosuria. When it was once developed it seemed to be under the control of the nervous system, and it was probably on this account that opium had been found such a useful remedy in the treatment of diabetes. So far as his observations had gone, there was but little danger of invoking the opium habit by such treatment. He much preferred opium to codeia, as the latter had been productive of but little benefit in his hands, in the treatment of this disease. He had been much interested in what had just been said regarding the danger of a too strict enforcement of an exclusive diet, and he believed that the best guide was the weight of the patient. This should be taken very frequently, and if there was a steady diminution in weight it was evident that the diet should be more liberal.

THE CUTANEOUS MANIFESTATIONS OF DIABETES.

DR. PRINCE A. MORROW presented a paper on this subject in which he said that the skin was especially liable to give evidence of the impaired nutrition consequent on the development of diabetes, and that it was in diabetic subjects very prone to undergo suppuration, inflammation, or gangrene. He would divide the cutaneous manifestations of diabetes into two classes, viz.: (1) Those evidently of diabetic origin; and (2) those occurring occasionally or incidentally in the course of diabetes. In this disease there was often a very noticeable scantiness of the perspiration, and a harshness or fine desquamation of the skin. Pruritus, not only of the genitals, but of the general surface, was one of the most common of the disorders of sensation associated with diabetes. Among the trophic disorders might be mentioned the thinning and falling of the hair, and the falling of the nails. Erythema was observed in situations not reached by the urine, and consequently the idea that it was always due to the irritation of this excretion was not correct. Diabetic eczema of the female genitals was to be distinguished by the marked infiltration, the abundant secretion, and the glazing of the surface; in males it was characterized by the acuteness of the inflammation, the redness of the surface, and the profuse discharge, which in some instances was sero-purulent. Of the diabetic manifestations on the general surface of the integument, furuncles were the most common, and they were characterized by a greater multiplicity and tendency to sloughing than in ordinary boils. *Xanthoma diabeticorum* was a disease peculiar to diabetes, as its name indicated, and disappeared with the cessation of the glycosuria. *Herpes zoster* was sometimes especially severe in diabetics.

DR. G. H. FOX said that he recalled seeing two cases of *xanthoma diabeticorum*. When an eruption of pale yellowish, flattened nodules was present on the lower portion of the back and buttocks, it might be said that the diagnosis of glycosuria was written on the skin.

DR. S. SHERWELL said that in his opinion a physician would be almost guilty of criminal negligence who would neglect to examine the urine for sugar in a case of extensive and persistent furunculosis, or in a severe case of pruritus vulvæ of obscure origin. In connection with this subject he wished simply to call attention to a papular, pustular, or pemphigoid eruption, named by Duhring herpetiformis, which was now known to be intimately associated with glycosuria.

REVIEWS.

THE TOXIC AMBLYOPIAS: THEIR SYMPTOMS, PATHOLOGY, AND TREATMENT. By GEORGE E. DE SCHWEINITZ, M.D., Clinical Professor of Ophthalmology, Jefferson Medical College of Philadelphia. Octavo, 240 pages, forty-one engravings, and nine full-page colored plates. Limited edition. De Luxe binding. Lea Brothers & Co., Philadelphia and New York, 1869.

DR. DE SCHWEINITZ has evidently entered upon the study of toxic amblyopias with genuine interest in his subject, and he has not been content simply to familiarize himself with the work of other investigators in this field, but has supplemented their observations by numerous carefully conducted experiments of his own. His study of the literature of the subject, it is evident, has been most exhaustive, and not the least valuable feature of his monograph, are the very full bibliographical references which it contains. Nearly one-half of the volume (104 pages) is devoted to the consideration of alcohol and tobacco amblyopias. He differs from Nettleship, Eales, Gunn, and others, in believing that alcohol alone is capable, as tobacco is, of producing a definite form of amblyopia. The presence of impurities in the spirituous liquors consumed, especially of fusel oil, is thought to be an important factor in the production of amblyopia. Before the thirty-fifth year, amblyopia from alcohol is said to be exceedingly uncommon.

The pathologico-anatomical basis of "intoxication-amblyopia" (alcohol and tobacco-amblyopia) is a sclerosing inflammation, involving only a limited portion of the optic nerve, the papillo-macular bundle, and comparable to the interstitial hepatitis of chronic alcoholism. The clinical expression of this pathological process, is the existence of a central color-scotoma, especially for red and green, which in advanced and neglected cases, may become an absolute scoloma, in which there is not even light perception. Hirschberg believes that a differential diagnosis between tobacco-amblyopia and alcohol-amblyopia can be established by the location and form of this scotoma. In alcohol-amblyopia the scotoma is "pericentral," *i.e.*, it lies about the macula; whereas, in tobacco-amblyopia it is "para-central," being more distinctly oval in shape, and extending from the macula to the blind spot.

The author regards the smoking of strong tobacco as the most common cause of tobacco-amblyopia. He has met with one very interesting case in a young woman in whom amblyopia was produced by working in a tobacco factory, and he refers to other cases of a similar character. He does not believe that nicotin is chiefly responsible for the impairment of vision. The susceptibility to tobacco increases with age. It is also influenced by race—the

Turks and Spaniards enjoying a comparative immunity from tobacco-amblyopia.

The statement on page 86, that "the prognosis of pure tobacco-amblyopia is always good, provided the patient will abstain from tobacco," we regard as too sweeping. The stage at which the case comes under observation is necessarily a most important factor in determining the prognosis. Bichlorid of mercury, iodid of potassium, nitroglycerin and digitalis, in addition to strychin, are the remedies which are especially recommended in intoxication-amblyopia.

The section chiefly devoted to quinin amaurosis is especially full and interesting, and the visual disturbances of chronic lead-poisoning are also treated of at length.

The book is well printed, on heavy paper, and the plates, showing sections of the optic nerve, etc., are excellent. It is bound in white cloth, with gilt lettering, and presents a very attractive appearance, quite unlike the usual medical volume. The proof-reading seems to have been done with considerable care, but a few typographical errors have arrested our attention. At the bottom of page 21, the word "are" has been accidentally omitted; on page 35, "glonoin" is printed "gloniin"; the fraction on page 92, which should tell us the dose of glonoin, is incomplete; an important comma is omitted in the seventh line from the bottom of page 106; "to" must be supplied after "He refers" near the bottom of page 191; "is" is printed "in" in the fifth line from the bottom of page 193, and in the third paragraph from the top of page 207, "fails to avoid objects" instead of "avoids objects" is, we presume, what was intended.

The book is one that the scientific practitioner of medicine, as well as the specialist in ophthalmology, may read with interest and profit, and feel under obligation to its author for placing it within his reach.

OBITUARY.

DR. J. WEST ROOSEVELT, a prominent physician of New York City, died suddenly of pneumonia, at his home in this city, Friday morning, April 10th. He developed his first symptoms on Thursday morning, but the disease advanced with alarming rapidity, edema of the lungs developed, and he died just eighteen hours from the onset of the disease. Death came so suddenly that it was a great shock, not only to his family and immediate friends, but also to the whole profession of the city. Dr. Roosevelt was an active member of the Academy of Medicine, the Medical and Surgical Society, the Pathological Society, and the Practitioners' Society. As a member of the Academy of Medicine, he became an active worker in the investigations undertaken by that organization in exposing the abuses that existed in the Croton watershed, and the exposure of the political corruption in the New York Quarantine Department. He was prominent in the movement that was made for the national control of the entire quarantine system.

Dr. Roosevelt was born in New York, July 2, 1858. He graduated from the Academic Department in Columbia College, and in 1880, received his degree from the College of Physicians and Surgeons. Upon his graduation, he went immediately abroad, where he spent several years in study at the various hospitals, and upon his return to this country, he began the practise of medicine in New York City. Although doing a general practise he made a study more especially of the diseases of the chest, and was considered an authority upon that subject. He was not only a thorough student, but a hard worker in his profession. He was attending physician at Roosevelt and Bellevue Hospitals, and also at the Seton Hospital, in Yonkers.

He was a first cousin of Theodore Roosevelt, president of the New York Police Board, and also of James R. Roosevelt, secretary of the Legation at London. Dr. Roosevelt married Miss Laura D'Oremieulx, who is left with three of five children that were born to them.

DR. JAMES J. MAPES, a noted physician among the younger members of the profession in New York City, died Friday, April 10th, at Saranac Lake, from tuberculosis after an illness lasting nearly six months. He was a son of Charles V. Mapes, and grandson of Professor J. J. Mapes, a scientist, after whom he was named, and a nephew of Mrs. Mary Mapes Dodge.

Dr. Mapes was graduated from the School of Arts of Columbia College in 1888. He was well known as an athlete during his college course, and was so popular among his fellow students that for three years in succession he was president of his class. His bright mind and powers of application attracted attention during his course in the College of Physicians and Surgeons, and at his graduation he stood at the head of his class. During his course there he spent his summers at the University of Edinburgh, Scotland, where he won the gold medal for the highest honors in anatomy. After his graduation he gained his hospital experience in the New York Hospital, and then went abroad and continued his studies at Vienna and Paris. While in Paris he studied under Dr. Roux at the Pasteur Institute when the discovery of the antitoxin for the cure of diphtheria was made. Upon his return to this country in January, 1895, an epidemic of diphtheria prevailed at the Nursery and Child's Hospital. He was appointed resident physician, and applied the antitoxin treatment with marked success. He contributed two articles on the antitoxin treatment of diphtheria to the *New York Medical Journal*, and delivered a series of lectures on the subject before the New York Polyclinic. Six months ago his health broke down, and he fell a victim to tuberculosis. He went promptly to Saranac Lake, where he remained until his death.

The sacrifice of this young and brilliant life, for Dr. Mapes was not yet thirty, is another example of the fatal tendency in the medical profession to overwork. He was one of five brothers, four of whom were noted athletes during their careers at Columbia College. An over-confidence in his physique undoubtedly prompted him to his excessive labors.

Dr. Mapes was a member of the University Athletic Club, the Psi Upsilon Club, and the Columbia College Alumni.